AMERICAN

Journal of Mining,

Milling, Oil-Boring, Geology, Mineralogy, Metallurgy, etc.

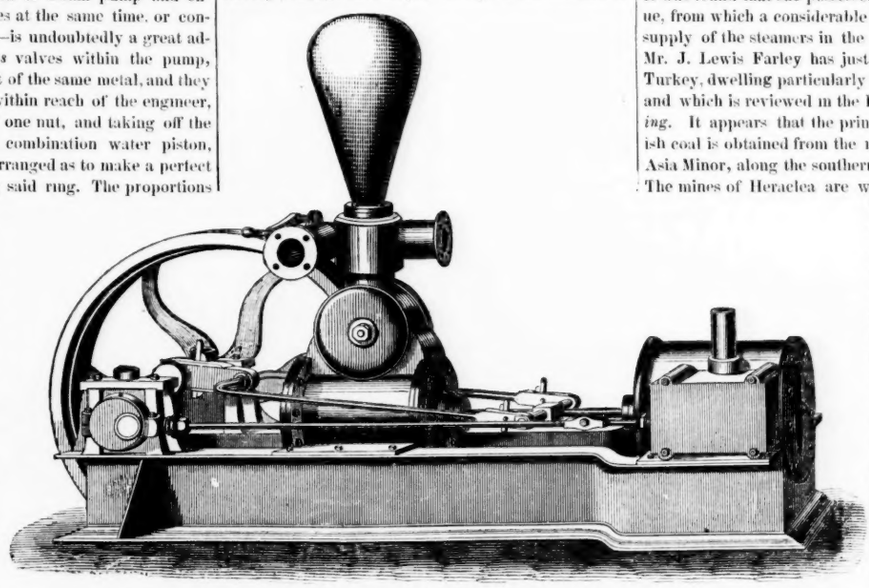
VOLUME I.
NUMBER 17.

NEW YORK, JULY 21, 1866.

$1 A YEAR IN ADVANCE.
SINGLE COPIES TEN CENTS.

STEAM PUMPS.

This week, we present to the readers of the JOURNAL OF MINING, an engraving of one of the latest improvements in Balance Wheel Pumps. It is known as the "improved Double-acting Balance Wheel Pump and Steam Engine," and is made by Guild, Garrison & Co., whose Steam Pump works and office, are at 55 and 57 First street, Williamsburgh—and New York city office at 74 Beekman street. We are informed that it has been thoroughly tested and found in all respects perfect for its work. The combination of steam pump and engine—capable of both uses at the same time, or convertible to either at will—is undoubtedly a great advantage. There are *brass* valves within the pump, working upon a valve seat of the same metal, and they are so arranged as to be within reach of the engineer, by the simple removal of one nut, and taking off the corner. There is also a combination water piston, with a metallic ring, so arranged as to make a perfect stamp-piston by removing said ring. The proportions and arrangements are such as to feed the boilers with a consumption of only two or three pounds of steam pressure. Such improvements necessarily serve to create a large demand.



IMPROVED DOUBLE-ACTING BALANCE WHEEL STEAM PUMP AND FIRE ENGINE.

Results of Deep Mining.

A. Hayward was educated as a lawyer, and having had some experience in lead mining in the Upper Mississippi, crossed over to California in 1850. His explorations brought him to Sutter's creek, Amador county, in 1853. Here he saw a recently commenced mine, which he considered had in it the essentials for success. He obtained a fifth share, and sat down to lay siege to dame fortune. The vein was but eight or ten dollar rock, and worked with difficulty; flour was at $60 per barrel, and labor in proportion. By the year 1857, his partners were disgusted, and he became sole proprietor, but heavily burdened with debt. His will, however, was unconquered. He could see that the ore was increasing in richness and width as he mined deeper, and he knew that he had not spent a dollar uselessly. The vein was broad, so that not a shovelful was taken out which was not passed through the mill, and at some hundred feet down the ore paid $12 @ $25 per ton. This paid expenses. Every year it improved. Now it is above 1200 feet deep, (by far the deepest mine in California,) and the ore averages $25, with portions of $45, $50, and even $100 per ton. A smooth granite wall that bounded the vein, rises perpendicularly from top to bottom of the mine. The lower level is some forty feet long; and at either end the beautiful quartz, with its blue and white vertical ribbons, glitters with the metals. The ore is conveyed to the surface by iron buckets, suspended by strong ropes passing over swifters, and winding over drums worked by a 100-horse engine day and night, and discharging 60 tons of ore per day into a rail car, which descends by its own weight to the stamp mill. From this mine has been extracted probably 6,000,000 to 7,000,000 dollars worth of bullion. We have spoken of this as the work of the man, Mr. Hayward, rather than as the peculiar value of the Amador mine, for it shows that our mines, when true fissure veins, increase in breadth and value as they go down, and that as there are richer mines than the Amador was or is, so if some such energy and straightforward work is employed upon them, the result will be still more satisfactory; though certainly Mr. Hayward's measure of success might satisfy most reasonably aspiring men; his income being already above $500,000 per annum.

Fire Bricks and Crucibles.

The *Enterprise*, Nevada, speaks of a series of experiments being made at the assay office of W. T. Rickard, F. C. E., at Virginia City, from a very fine deposit of Kaolin, recently discovered about three miles from there. The deposit is about seven feet in thickness, and is said to be of superior quality. Kaolin is the finest kind of clay, and is the material from which porcelain and all the fine China wares are manufactured. It derives its name from the Chinese word *kaoling*, meaning high ridge, the name of a hill near Jauchau Fu, where the mineral is obtained in abundance. The clay is rare in most quarters of the world, and with the exception of one deposit in England and one or two on the continent of Europe, is worked to very little extent. From preliminary tests that have already been made by Mr. Rickards, most satisfactory results have been obtained, the bricks manufactured being found equal, if not superior, to those of Stonebridge manufacture in resisting heat and chemical action. It is estimated that fire-bricks from this material can be manufactured there and sold for one-half the price (sixty cents) charged for the imported article. This deposit of kaolin is said to be of such a superior quality that the finest kind of porcelain may be produced from it; while, with the proper proportion of silica introduced—it will make crucibles, etc., equal to the best French article imported.

Mineral Resources of Turkey.

During the time of the Crimean war, much attention was drawn to the mineral resources of Turkey. It was found that she possessed coal fields of great value, from which a considerable quantity of fuel for the supply of the steamers in the Black Sea was drawn. Mr. J. Lewis Farley has just published a work on Turkey, dwelling particularly on its mineral resources, and which is reviewed in the London *Journal of Mining*. It appears that the principal part of the Turkish coal is obtained from the mines of Roumelia and Asia Minor, along the southern coast of the Black Sea. The mines of Heraclea are well known, but we believe have been but little worked since the time of the Crimean war. The Taurus range is celebrated for the richness and abundance of its copper, but the supply raised is only 1200 tons per annum. Silver and lead are extensively found both in European and Asiatic Turkey—the produce being 600 tons, while gold is stated to be obtainable in the mines of Thessaly. Two enormous provinces with a sea coast of about 300 miles, and containing an almost incredible amount of mineral wealth, are leased free of all claims and taxes for an annual payment of £650. The lessee has erected smelting and refining works at Mount Pelion, at a cost of £50,000, for extracting lead and silver. The Turkish laws are exceedingly ill-calculated to procure the development of her mines. These are vested in the state, which grants licenses to natives of the country, or to public companies, to search for and to work minerals, but at the same time imposes so many restrictions, as to present numerous obstacles in the way of speculation. Foreigners are able to work the mines only as members of a joint stock company, which is allowed neither to increase the number of its members, nor its capital, without consent of the state; and at the expiration of the time mentioned in the "firman," the whole property and working materials become the property of the state at a valuation made by government officials, even though the right to work be re-accorded to the same parties. In case other minerals besides those specified are worked, a fresh "firman" must be obtained at fresh expense, while in every case a sum of caution-money is deposited, of which it is somewhat difficult to obtain repayment when the contract ceases. In fine, Turkey appears to have a superabundance of the raw material for creating wealth, but without the energy to develop it herself.

The Silver Mines of Saxony.

Freiburg, in Saxony, about twenty miles from Dresden, is noted for its mines of silver. These have been opened for nearly a thousand years, and have been among the most profitable in Europe. They are still in active operation, and from twenty to thirty thousand miners find occupation in this tract of the Enzgebirge or Metal mountains. The central point of this town is the huge cathedral, the houses cluster around it, and the picturesque old wall with its heavy towers surrounding the whole. Around the town are mounds of "dirt," squared off neatly, like fortifications; each is crowded by a little nest of houses, and from which a tall chimney protrudes, indicating where a shaft runs down and intersects the galleries. After procuring a ticket and putting on the miner's dress, not forgetting the leather apron fastened on behind upon which to sit, we began the descent, going first down a ladder four hundred feet in length, and then down other short ladders. The greatest depth of the mine is about two thousand feet. The ore is not found within three hundred feet of the surface. The hill is traversed by horizontal galleries one under the other, seventeen in all, with shafts running down to them. There were three thousand five hundred men at work in the mine we visited. They were all civil, and greeted us with "gluck auf," good luck. The amount paid these poor miners for their service, seems miserably small. The ablest bodied can earn thirty cents a day for twelve hours' work. Yet the people all seem contented. Their wants are slight, barley and rye bread are cheap, meat is little eaten, the beer drank by the peasantry is not expensive, and their three grochen a day, or about eight cents, will supply all the wants of nature. The wives and daughters work in the fields, and the children earn enough for a living when they are seven years old. And so it is that the peasants and miners are comfortable, and in fact are more contented than men who live in an entirely different grade of society. Nor is the life said to be unhealthy. Owing to the improved modes of ventilation, the air is excellent; it is neither cold nor hot, but exceedingly comfortable, and equable, of course, to an extent of which we know nothing on the surface. The most striking objects which we met underground were the great waterwheels which drive the pump. These are about forty feet in diameter, and as we saw them slowly revolving in the darkness, hundreds of feet from the surface of the earth, and heard the rush and dash of the water, it was inconceivably impressive. There are nine of these, one above another, and the water falls the whole depth of the mine. The arrangement is a simple one. A single steam engine on the outside serves to draw from wells at the surface water enough to make the subterranean wheels turn, for the fall of a small stream several hundred feet gives, of course, almost irrisistible power. The water thus introduced is added to that at the bottom of the mine, but the amount is slight compared with that which the huge lifting pumps remove. So thorough is the drainage, that in almost every part which we visited the ground was perfectly dry. In the Freiburg School of Mines, the most celebrated in Europe, there are a hundred and five students, of whom thirty-five, or more than a third, are Americans. There is such a demand for educated miners with us that we can hardly supply it, and so we must undergo the disadvantages of dealing with the subject through the medium of a foreign language. Yet this school, now a hundred years old, sustains the world-wide reputation which it gained under Werner fifty years ago, and can, probably, give a better training than England ever can afford. Here there is the inestimable advantage of actual mines close at hand, and I found a young American at Freiberg who has just come, and who works every day breaking stones from six o'clock till eleven. This is to train the eye to the quality of mineral rocks, as the breaking involves the throwing away of what is worthless, and sorting of what remains. About a half of the Americans here are hard-working young men. The other half are of a different stamp, about a quarter of the whole taking life very cosily, and another quarter being utterly given over to drinking, idleness and profligacy of all kinds —are so noisy and so insolent that they are bringing great discredit upon the whole American name. The other men are quiet and studious that they go on unnoticed; it is only the vicious who are noticed, and tarnish the purity of our national character.

Cheap Electricity.

In a recent note sent to the Academy of Sciences by M. Gerardin, "On a Battery of Iron Turnings," he thus describes the apparatus: "I replace the zinc of a Bunsen's battery by iron borings; an iron-bar placed in the middle of the borings serves as a reophore. the iron is placed in common water. In the porous vessel I place a solution of perchloride of iron with aqua regia added. The electricity of this solution is collected by a carbon serving as the positive pole. The carbon is made of powdered coke agglomerated with parafine. Such a battery may be made of large dimensions, and a great deal of electricity obtained at a small cost.

Mining Summary.

Colorado.

Editorial correspondence of the *News* states that on a gulch of Willow creek, the first tributary above the mouth of Gilpin river, Dr. Bell of Georgetown and a few others are mining for gold. The prospects on the creek are excellent. . . Writing from Empire, the same says: Clear creek is high from melting snow, yet it is fordable at favorable points. Very little mining is being done in its bars this season. At only one point—just above Idaho—did we notice preparations for extensive operations. Probably with low water miners will again draw upon the rich deposits in its banks. But few mills are in operation, though a number of new ones are in process of erection or receiving their machinery. This place shows more improvement than any other we have seen. . . The *News* of July 4th says: J. Marshal Paull, now located at Buckskin, writes that gulch mining is again looking up in that vicinity. A party who have been mining on Beaver creek for the last four years with indifferent success, have at last "struck it rich," and are now taking out at the rate of $50 per day to the hand. . . The Black Hawk *Journal* of July 3d furnishes us with the following (condensed) news: Mr. John P. Bruce is running his old twelve stamp mill, two batteries, six stamps in each. For four days last week he used the mercury treated by sodium-amalgam in one battery and the common mercury in the other. He got one ounce and nineteen dwts. more gold in the former than in the latter. Mr. Emery also tried some of it in the Narragansett mill just before it shut down. In one section of twenty heavy stamps he used the sodium-amalgam for two batteries and the common mercury for the other two during a run of three days, obtaining from the former five ounces of amalgam more than from the latter, which retorted $6.50 an ounce, or $32.50 in all. At the same rate the use of it in the forty stamps of the Narragansett mill for a week would increase the yield by $260. Probably this result would be even better with more experience. Two or three other mills have tried it, getting no result, which may have been due to the character of the ores or to the inexperience of the operators. . . The property of the Denver and Fisher Mining Companies had been bought at sheriff's sale by Warren, Bussey & Co., for $15,000 and $10,000 respectively. . . Professor Hill feels certain that smelting is the only treatment for our ores—that any process for amalgamation, looking only to the saving of gold, is worse than idle—is but a species of waste and extravagance. As to desulphurization, they have lately got into operation at Swansea a method which treats forty or fifty tons a day without any fuel at all except the sulphur in the ores, of which they must contain eighteen per cent. This is far below the amount existent in the most of our ores. The Professor will accompany the Swansea men on a visit to the South Park within a short time. So far as they have been able to examine the mines here they are well pleased. Their experiments with a view of a thorough knowledge of the amount and average character of the Colorado ores will be most thorough and exhaustive, as it should be. . . Col. Graflin has recuperated some from his two years' labor getting the works of the Hope Company under way. For the want of copper, his mill is only running to one-third its capacity, but that covers all expenses. He is going to open his mine more systematically, and will have no trouble, he thinks, in getting ore to run the mill up to its full capacity, when he hopes to be able to pay a dividend. Much money has been wasted, processes have failed, but the mines remain, and there is any quantity of most valuable ore in them. Thirty tons of it can be smelted down into one of "mat"—containing the bullion and copper—and that can be shipped to Swansea, in Wales, for ten cents a pound, or at the rate of seven dollars a ton of ore. The copper in our ores is abundant enough: this is said to be the opinion of Mr. B. Hermann, the man who runs the furnaces at Swansea, from what was brought there last winter, and from specimens lying round in New York—to pay the expense of mining, shipping to Europe and smelting, leaving the bullion net profit, to be divided between the miner and smelter. Col. Graflin says the Eagle Company are going ahead immediately, their idea being to use the Keith process, or at least to get out ore in unlimited quantity, perhaps not adopting any process for treating just at present. We hope that no Keith furnace in Colorado will be allowed to stand idle for want of ores. Somebody wants to get out some gold to send east, to declare a dividend, or a hundred of them. . . . . At South Boulder the Eagle Company intend to confine themselves to getting out ore. The Rollins Company are building a mill flume one mile long. . . . Crosby & Thompson are still puttering, although it is said Mr. Ballou's companies have concluded to shut up and wait awhile. . . . . The Sierra lode, near Mill City, was discovered not long ago. Twenty feet from the surface the crevice is four feet nine inches in width. An ounce, from about five pounds of ore taken equally all the way across the crevice and pulverized, assayed nearly $50 a ton in silver and gold. . . . . "Alden" writes, June 25th, from Spanish Bar, relative to the new Bergen District mines. He says: During the past winter considerable prospecting has been done, but none of the lodes have as yet been sufficiently developed to fully determine their value. That the lodes are very large and strong, and that many of them are quite rich in copper and lead is a fully established fact, but whether they are rich enough in silver and gold to pay good returns for mining and milling, at present, is a question of some doubt. The surface quartz in some of them looks well, and is said to prospect very well. We were also told that arrangements are being made to put in a small stamp mill immediately, on or near Bergen's ranche. The galena also, in some of the lodes, is very fine-grained, and looks as if it might be quite rich in silver. The gangue rock in most all of these crevices is the fluoride of calcium or fluor spar of the variety known as *chlorophane*, from its affording an emerald green phosphorescence on a hot iron. It is of various colors, green, blue, purple, pink, white, and some pieces having all these colors in bands and blotches. This material in Derbyshire, England, where labor is cheap, is worked into candle sticks, vases, and various ornaments. It is quite difficult to work, on account of being very brittle, but when carefully worked by skilfull workmen, it takes a high polish, and the banded varieties are often very beautiful. It is also a valuable flux for the reduction of copper ores. It is too soft to be of any value for jewels. The Argentine lode was one of the first that we visited, and is one of the most extensively developed in the district. It is situated about two miles from Harrington's saw-mill, on Bear creek, has a shaft at discovery some sixty-five feet deep, and crevice seven feet between the walls, and at the bottom has some ten inches of nearly solid, fine-looking galena; the balance of the crevice being filled with fluor spar, with occasional spots and streaks of galena disseminated through it. It is not being worked at present, some of the owners being "busted." The Pocahontas lode, on Cub creek, one-half mile from Harrington's mill, was the next one visited—has a shaft on discovery ten feet deep—crevice five feet between the walls, mostly fluor spar, with a streak of red oxide of copper, very rich. Also some fine-looking galena. On the whole, a very promising lode. The Ozark lode is one mile north-east of Harrington's mill—has a shaft twelve feet deep—crevice eight feet between the walls, mostly filled with purple fluor spar, with some galena. The Shakespeare lode has a shaft eight feet deep—crevice three feet between the walls. Fluor spar, with a little galena. From this lode we obtained a very pure specimen of white and green, mammillary chalcedony. The Woodbine lode has a shaft fourteen feet deep and a crevice seven feet wide, and much very beautiful purple and green *chlorophane*, with a little galena interspersed all through the crevice. It is a very promising lode, situated on Cub creek, some half-a-mile south from Harrington's mill. The Union Forever lode, discovered and owned by B. W. Easten, is a promising looking lode—has a shaft eight feet deep, and a three foot crevice of fluor spar, with some dirt. No galena as yet, but good indications for it. The Wisconsin lode is of about the same character as the last described, with the exception that it shows some good-looking galena, and has been traced and opened at different points for a distance of some 5,000 feet. The gangue is fluor spar, green, blue, purple, pink and white, some pieces very beautifully banded and mottled. The Liberty lode is about thirty rods east of Bear creek, and near the Bear Creek House—has some of the best and richest copper ore that we have ever seen in Colorado. Has a shaft ten feet deep, and a three foot crevice of fluor spar, with some fine galena and red oxide of copper. The Trump lode, near Bergen's ranche, owned by A. F. Post and others, is also a lode of some promise. Contains much of the blue and green carbonates of copper, with some of the silicate. Gangue different, and much harder than that of the preceding. . . . The Central City *Register* of July 3d says: The Missouri City lode, near the summit of the divide between this and Clear Creek county, is being developed. A second shaft has been sunk for ventilation. In the one first sunk, they have a crevice something more than three feet wide, through which are numerous veins of very rich sulphurets of iron, from two pounds of which prospected in a common iron pan, fifty-two cents in gold were obtained. Work will be continued through the summer, or until such time as machinery will be required. . . . . If a market for the ore can be obtained at reasonable figures the Delaware lode on Lemon gulch, Russell District, will be vigorously worked. . . . F. R. Ford has completed his smelting furnace in Russell's gulch, and will commence smelting ore sometime next week. . . . The Eureka Company are putting up hoisting apparatus on their mine on the Eureka lode, and will shortly be ready for business. . . . . It is reported that the Narragansett Co. will shortly resume work in the mines, taking out ores to be treated by the smelting process, the company having concluded that this is the only way to save the gold in refractory ores. . . . The *Register* is jubilant over the prospects. It says that numerous veins containing rich deposits, untouched since 1860, are being peopled with honest workmen. We hear again the steady stroke of busy hammers, the creak of windlasses, the outpouring of buckets laden with precious mineral, and hope soon to hear the clatter of stamps from every mill in the country. Every day we are told of rich strikes being made among abandoned mines. On returning from dinner yesterday, we were accosted by Dan Doyle, who held in his hand a large block of ore, taken out a few hours previously from the Barnard lode. This, like all others of consequence, has been paraded through eastern markets in the vain endeavor to sell it, and has not been touched by mortal hands since 1860. But it is now filled with men, who are cleaning out the piles of loose rock that have fallen into the original shaft, with a view to active working, one hundred dollars per ton having been offered for the ores. In like manner, others are pushing forward on every hillside. Men are recovering their senses that were scattered by the delusive phantom of speculation. They behold the chasm toward which we are rapidly drifting, and unite their energies upon the material development of the country's resources as the only means of salvation. Messrs. Behr & Keith will start their new desulphurizer to-day. Jerry Kershaw will be here in a few days to commence the building of a similar one for his works on the Bench lode. Mr. DuBois will soon have his mill in order. Mr. Sweet, of Gold Dirt, contemplates a similar enterprise. Prof. Hill is here chaperoning an eminent English chemist, who has come to make a thorough analysis of the best ores, reporting to certain heavy mining combinations in England the results. The prospect is brightening daily.

Montana.

The Virginia City *Democrat* of June 21st says of William's quartz district: The Wright lode was discovered last September; there is a shaft sunk upon it to the

depth of thirty feet. It has a well defined crevice three feet wide, and prospects largely in gold and silver. The O. D. Barrett lode, discovered by N. Johnson in March last; it prospects well in gold and silver. It has a well defined crevice of six feet in width, which makes it the more valuable. The Favorite No. 2 has a shaft sunk on it twenty feet deep, and a crevice seven feet wide, and prospects, by pulverizing the rock in a mortar and panning it out, the enormous sum of $1,395 in gold to the ton. The Blue Horse lode, lately discovered by N. Johnson, the indefatigable prospector, has a three foot crevice, well defined, filled with a solid and almost seamless body of quartz, which renders it the more certain of turning out rich; depth of shaft only six feet. This lode promises to equal, if not surpass, any lode in the district. The owners intend sinking a shaft on it one hundred feet, and that before next fall. The close proximity of all these lodes to wood and water render them still more valuable. We understand there are two mills on the way which are to be erected on William's gulch during the present season. With half a dozen mills at Summit and certainly two mills at William's gulch, and one or two on the Mapleton, and the certainty of a bed rock flume being run through our gulch at an early day, our prospects are certainly bright. . . . The large side ditch in Nevada district is again completed. The miners, merchants and mechanics turned out in force, and by their combined labor completed the job in two days. Mining has again assumed its former activity. . . . The Virginia City *Post* of June 16th says: We are glad to say that five different ledges of good coal have been discovered about twenty miles from this city, on Jackass creek, on the farther slope of the Madison. Samuel Fell, who was one of the discoverers of the Jewel House lode, is the fortunate finder. The settlers in the neighborhood, being fully aware of the importance of the discovery, have offered to join in the construction of a road to it. There is iron, lead and quartz in the neighborhood, though none of it is yet developed. The discovery is, nevertheless, of immense value. There is also another fine ledge on Cedar creek, about four miles farther from this city. The coal burns freely in the forge. The seam varies in thickness from eighteen inches to five feet, and one of the ledges is traceable in width about three-eighths of a mile. The others are large, but of less dimensions than this one. . . . The hydraulic claims on the hill-side across the gulch are doing better than could be expected during the unpropitious weather of the last week or ten days. The Missouri company cleared up about half their week's work, and received $800 as a return for the labor of two sets of three hands, each working alternately day and night. . . . As the Fosters were sluicing down to the bed-rock, cleaning off the foundation for their mill at Summit, on the Mesler lode, they came across the blue clay seams which always indicate the proximity of a lode in this district, and pursuing their investigations, they found a fine ledge three feet and six inches in width, and panning out well. It is a most fortunate strike. . . . The miners of Fairweather district have adopted a law that all bar claims and hill diggings not provided with water may be held without representation till water may be had for working such claims by sluicing. . . . Mining at Wisconsin gulch is progressing favorably. The average pay is about $25 to the hand. . . . From Professor Eaton we learn that he has measured the road from Virginia to Hot Spring district, and found it to be thirty miles. Close to Sterling is erected the forty stamp mill under his personal charge, which will be ready for work early in July. The gold saving apparatus is very complete, consisting of a train of sixteen arastras and twenty amalgamators. The Thermopylæ, (i. e., "warm baths,") is the principal lode experimented upon, and is in course of development. It is very rich in gold and several feet wide; how broad it is, indeed, has not yet been definitely ascertained. It shows evident marks of glacial attrition and disturbance. Two silver furnaces are on the way across the plains to Bannack, where they will be employed in reducing the ores of the New York and Montana Mining and Discovery Company. Water being much scarcer than silver in the Blue Wing district, the furnaces will be located close to Grasshopper creek. The material and fixtures for a machine shop will be part of the freight for Bannack, and will be much needed and most valuable. This company have 100,000 feet of quartz in Montana. Wherever we turn we find quartz, and machinery either coming or in course of erection, while every little mountain rill flows over a bed of golden sand. . . . Mr. J. Despeck, who has just come over from Helena, informs us that $18,000 were washed from the claim of Judson & Metcalf, on Montana Bar, Confederate Gulch, in seven days, and that he saw $4,000 carried away in a bucket from Smith & Burchett's claim, after a run of ten hours. . . . The *Post's* letter from Helena runs thus: Col. Keyser has recently had ten assays made on the New York extension of the Big, or Crœsus, or Cliff lead, as you choose to call it—five of the assays averaging $28 and five $76 to the ton. Considering the enormous width of the crevice and the ease with which the rock can be worked, this is considered quite encouraging. . . . On the afternoon of the 7th inst., the connecting rod of the engine at Benton's lumber mill suddenly broke, while the engine was being run at a high rate of speed; both heads of the cylinder were torn out, and a general smash resulted. New parts to replace those broken have been ordered from Nevada, but the mill will be obliged to lie idle a month before they are received. This little accident, which might be atoned for in a couple of days had we suitable conveniences, such as iron foundries and machine shops at hand, is now productive of a loss of at least five thousand dollars in time and money. . . . The street-mining has been discontinued near the old City Hotel, Helena, and bids fair to find a second edition of itself in operations just commenced opposite the post-office. . . . Another writes from New York gulch: The indications are that in a few weeks White's gulch will be prospected from rim to rim, as they are now on the bed rock with a good drain. A number of claims on this bar are being worked, and will average about one hundred dollars per day to the hand. In Uncle Jonnie's gulch, about fifteen hundred feet of the lower end will average about twenty-five dollars per hand. There is a splendid ranch under rapid improvement at the mouth of White's gulch, owned by Messrs. Hall & Co., of Mill Creek. We predict for them a noble harvest of glittering gold, and think that their example might be copied to advantage by vast numbers of those who are spending their time and money in running after the golden pot at the end of the rainbow. I have also had occasion to visit the bars below the mountains on Magpie gulch, which empties into the Missouri, just above the Canon Ferry. These bars are very extensive and lie on each side of the gulch. They are from two to twelve feet deep and upwards. Some gold is found all through the gravel, which latter lies within a foot or two of the surface, and prospects, I am told by reliable miners, from one cent to ten cents to the pan. I saw some of the gold; it has a beautiful color, and is well washed. There is five or six hundred inches of water in the creek which is easily utilized, and is being carried out on the bars. In the course of six weeks these bars will amply repay the honest toil that may be undergone in their development. Several similar bars are being worked on Cave gulch, about half a mile down the ravine, and with a small head of water yield twenty-five dollars per day to the hand. The ditch here is being extended, and others of them will soon be making their returns, to the joy of their owners. Up above the canon in Cave gulch, we understand the claims are turning out very well. The diggings are shallow and rich, but owing to the small amount of water, not half of the claims are being developed. While traveling around in this section, I was forcibly reminded that a hunter always sees plenty of game when he has no gun along, by being told that the first dry gulch below Cave, known here by the name of Cooper's gulch, is very rich, especially in its bars; $5 and $6.25 have been taken out, and all the gravel, which is about six feet deep, prospects largely. But alas! no water can be had, and the distance to haul it is too great to make it profitable—at least it is so thought. In the drain ditch in Kingsberry gulch yesterday, they took out $2.50 to the pan, with a beautiful wash. They work and wait patiently, but do not want to sell. And the same is a peculiarity of the New York gulch miners. It takes them longer to open their claims than they at first calculated, yet I hear of but few claims for sale. The miners rest easy, feeling assured that there is more money in the ground than they could possibly get for it. . . . A subsequent note (June 6th,) says: Since penning the above they have struck from five to twelve dollars to the pan in Boulder, below Diamond, on Nos. 5 and 6, below discovery. Judging from appearances, the gulches on the right bank of the Missouri river are just being opened, and will not, in the main, get in good working order before next season. Boulder is just drained, and opens remarkably well. If it "continues in well doing" the prospects are bright. Confederate has but one drain ditch to the bed rock, and is not prospected from rim to rim. White's has two drains down, but the gulch is not yet prospected. New York has not any ditch down yet, but they have struck rich gravel, and are in hopes of soon reaching bed rock or a streak of luck. Kingsberry is just sounded, and the ring is of the pure metal. Not any of the gulches will be worked very carefully this season, but next year much of their treasure will be exhumed.

California.

Nevada.—The Grass Valley *Union* says that the Allison Ranch mine is now being worked at a depth of 475 feet. One thousand ounces of amalgam, worth $7 50 to the ounce, was the result of four days' run of the batteries. . . . The *Transcript* receives from Eureka flattering reports as to the quartz ledges, and says: The Jim Ledge, about four miles this side of the town of Eureka, is attracting a great deal of attention, and well it may, if one-half is true that we hear in regard to it. A gentleman who visited this mine a few days since, tells us that the company have run a tunnel in on a ledge a distance of 90 feet, and struck rock that is only second to that of the famous Allison Ranch. The ledge is over seven feet in thickness, and our informant says he has been in the mines since 1850, and never saw a sight that equals the Jim Ledge. The company have ordered a 20-stamp mill from San Francisco, and expect to have it running within sixty days. . . . A big piece of pure gold, valued at between $900 and $1,000, was found in some hydraulic diggings, just below the town of Moore's Flat, on Saturday last. The claims (our informant forgot the names of the parties owning them) also yielded a pan, the size generally used in prospecting, two-thirds full of Amalgam. This claim is worth having. The chunk is said to be the prettiest ever found in Nevada county. . . . Parties from Grass Valley and San Francisco recently visited the new ledge on Deer Creek, near the mouth of Wood's Ravine, and offered $11,000 for the mine and rock on the surface. The owners readily accepted the proposition, thinking that a bird in the hand is worth two in the bush. The first thing the purchasers did was to have the rock on the surface crushed, which yielded them the sum of $13,000—leaving them a balance $2,000 above the purchase money. The company have since erected hoisting works, have sunk their incline to a depth of 60 feet, struck the ledge three feet thick, and are now taking out rock equal to any we have ever seen.

Plumas.—The Quincy *Union* says: The Monitor company at Union Flat, is taking out rich pay dirt. . . . The Buckeye company has easy working rock, and expects to strike gravel this summer. . . . The Crescent company cleaned up last week between $5,000 and $6,000. . . . From the *Union*, June 9th, we learn that at Poorman's Creek, Gentry & Co., and Brown & Riddle, have been at work piping in their claims during the last four months. They have a good supply of water, and will not commence "bottoming up" for some time. . . . Turner & Co.'s claims are prospecting well. . . . Bradley and Morn & Co. are at work in their tunnels. Foss & Siebert have been ground sluicing during the Spring, and have a large piece of ground "stripped" ready to clean up. . . . O'Neil, Coyle & Co., at Hopkinsville, have been sluicing all the Spring, and have just set their sluices for a clean up. . . . At Nelson Point and vicinity White & Fell are at work upon Hottentot Bar. This bar has been abandoned for the last eight or nine years, but is now paying from ten to twelve dollars per day to the hand. . . . Jackson, Jolly & Co., at the Willow Ranch, are doing well in their lower claim. It is paying from twelve to fifteen dollars per day. They will commence cleaning up in their upper claims in a short time.

Del Norte.—The Annita copper mine commenced shipments to Liverpool in June. Some 6,000 tons of the ore, assaying 20 per cent., has been put in sacks for shipment. Much copper ore now being found on the Pacific coast, and the richness of quality of some found in Del Norte county, is especially spoken of. An English company have just purchased the Alta mine, paying the sum of £100,000 for it; £120,000 have been offered for the Annita.

Nevada.

The Comstock correspondent of the *Tribune* writes:—"There are at present on the Comstock Range 46 claims, containing in the aggregate 22,258 lineal feet, which sell at prices varying from $500 to $1,500, and even $6,000, per foot, and whose gross cash value cannot be less than $50,000,000. Of these claims one, the Gould and Curry, has been worked to the depth of 821 feet. Two, the Hale and Norcross and Chollar-Potosi, to the depth of 700 feet, while eight have been worked to the depth of 600 feet, and over 20 to a depth exceeding 400 feet. The owners of said claims have excavated about 28 miles of tunnels and drifts, and nearly six miles of shafts, wings, and inclines. They have 44 hoisting and pumping engines, which average from 30 to 40-horse power, and they employ 76 mills for reducing their ores, which crush about 1,800 tuns daily, whose yield, at $30 the tun, would amount to over $1,500,000 per month. The Comstock Lode alone, in fact, yielded in the year 1864, more than $21,000,000, and it is estimated that its product for the present year will reach to $30,000,000 or $35,000,000. To attempt further to impress on the minds of our readers a conviction of the value and importance of the mines of the Virginia City district may be deemed a work of supererogation, yet we shall insert here two tables which will throw additional light on the subject, and impart a still more accurate conception of the metallic resources of that section of the Silver State, and of the wealth and enterprise of the companies interested in its mines. One of these tables exhibits the yield of some of the principal mines on the Comstock Lode during the three months ending with April, 1865, and the other the gross amount of assessments paid by the stockholders of over thirty of the leading mines in the Virginia City district up to the present time:

TABLE No. I—*Exhibiting the yield of some of the principal mines in the Comstock Lode during the three months ending with April*, 1865.

Yellow Jacket	$720,107 54	Confidence	$89 042 10
Savage	605,223 40	Bowers	61 750 00
Gould & Curry	447,183 98	Ophir	57,713 20
Chollar	440,000 00	Eclipse	55,568 05
Belcher	314,350 31	Challenge	51,790 44
Potosi	308,120 92	Bacon	41 989 07
Imperial	201 344 55	N. York & Nevada	41 900 98
Empire	119 208 49		
Total			$3,555,091 03

TABLE No. II—*Exhibiting the gross amount of Assessments paid by Stockholders of over thirty of the leading mines of Virginia City District:*

Chollar	$448,000	White & Murphy	$53,970
Sierra Nevada	288,000	Baltic	52 200
Gould & Curry	250 000	Imperial	49 080
Burning Moscow	230,994	Whitman	49,500
Santiago	170,650	Baltimore American	48,600
Hale & Norcross	130 000	Charles Caney	45,000
North Potosi	130,000	Best & Belcher	44 800
Bayazette & Golden End	113 000	El Dorado	38,400
Savage	108 000	Burnside	25,200
Caledonia Tunnel	90,000	Iowa	25,200
Daney	94,000	Belcher	21,008
Potosi	86 300	Desert	17,400
Lady Bryan	76,250	Norton	17 600
Uncle Sam	75 600	Mt. Rose	15 000
Crown Point	74 650	Pride of the West	12 600
Lucerne	67,000	Porter	6,000
Total			$2,950,782

"These tables are of undoubted authenticity. Table No. I. has been framed from the returns of the Superintendent of the several mines named therein, while table No. II. has been copied from the stock circular of a leading San Francisco journal. The briefness of the period to which table No. I. refers, and the paucity of its returns, may indeed detract somewhat from its value. But though said defects may tell against the table, they certainly have no tendency to lessen our opinion of the metallic resources of the Virginia City district. For if fifteen of its mines yielded over $3,500,000 in the three months ending with April, 1865, how much greater must have been the gross product of the whole? The large amount of assessments paid by the various companies enumerated in table No. II., must also be regarded as proof of the enormous metallic wealth of that section of the Silver State, since it is evident that these companies would never have risked so heavy an outlay on their mines had they not expected to be reimbursed twenty-fold. Here is an illustration: The Gould & Curry stockholders have paid about $250,000 in assessments, but in 1863 their mine yielded them over $3,700,000, while its gross product to the present time has been little short of $20,000,000. Mines, of course, require money as well as confidence, labor, and perseverance for their successful development. But as long as the above proportion holds between outlay and income, none need fear to invest capital therein.

Pahranagat Lake.—S. Pearson writes from this mining district, May 20th, that while Gov. Durkee and party from Salt Lake City were there, the Governor made an offer of $8,000 for five hundred feet of the "Green Monster" claim, some of the rock from which was assayed and went as high as $6,000 per ton. A

party under the lead of a Mr. Day had also arrived. This party was joined on the Desert by a large party from Nevada, and one also from San Francisco, with the former of which was Gov. Blaisdell, the State Mineralogist, and three members of the Nevada Legislature. They suffered considerably in the Desert. One man struck out by himself to get water, got lost, and died from thirst. His horse came into camp, and he was found five days afterward. Already three hundred men are camped there, and more are coming every day, and coming to stay. Many of the Governor's party are practical miners, of experience at Washoe, and they all state, says the writer, that these ledges are the richest ever struck. Gov. Blaisdell, who has made a large fortune in the silver mines of Nevada, says it beats everything he ever heard or read of, and predicts that, within the year, there will be there the largest mining company on the Pacific coast. He has but one fault to find, there is too much silver, regrets that he is a Governor, and expresses his determination to be with them as soon as his term expires. The demand for labor is far greater than the supply, and there is but one draw-back, the Indians. A good deal of trouble has been experienced from them, and it is not all over yet. They have taken considerable stock, and killed one man named George Rogers, who was elected sheriff of Pahranagat district last fall. . . . . A correspondent of the *Bulletin* writes:—"But very little work has been done in the mines of this district, although numberless locations have been made, and the district has been long enough discovered to have been well tested. The miners here attribute the slow progress they have made in developing their ledges to the scarcity and high prices of supplies. Provisions and tools are scarce and high, and everybody is anxiously awaiting the regular opening of navigation on the Colorado. I have never seen in any mineral district such rich and extensive croppings; and while the rich prospects found on numberless outcroppings are, without doubt, mere accidental deposits, some of the ledges, or rather lodes, indicate an abundance and permanency of rich ores. The Illinois ledge presents a huge outcrop almost its entire length which will pay for working in mass. Seams of very rich ore, containing lead and antimony in different forms, intersect the rock frequently, and so general is the diffusion of paying ore that the rock will probably be worked without separation. The Virgin Silver lode presents a large mass of rich ore on the surface. From this lode I have seen fragments of rock, weighing as high as 1,000 pounds, thrown off by gads and levers, that will pay, by working in mass, several hundred dollars to the ton. All through the rock of this lode virgin silver is found, together with a rich sulphuret of silver, alloyed with a small amount of antimony and lead. The ore, although not of the most docile character, is yet capable of being worked easy by roasting, and is rich enough to bear a heavy per centage of loss and a costly mode of reduction. Some two or three companies organized in the East have commenced operations here. A few months will demonstrate whether the extraordinarily rich surface rock maintains its bulk and richness beneath the surface. If it does, then this is destined to be one of the richest mining districts ever discovered. The mineral district is about three miles in length, from North to South, by two miles in breadth—Silver Mountain, on which the principal claims are located, occupying a central position. Wood is abundant, water scarce.

Kentucky.

A letter from Louisville, June 26th, to a contemporary, runs thus: Kentucky has an area of 37,680 square miles. Population 1,155,684. Value of real estate $171,187,963. Value of all kinds of property, $351,562,350. The whole number of counties is 110. Of these, 51 are known to contain minerals for the most part valuable and in paying quantities. Beginning with the lowest surface rocks the following geological system prevails: 1. Blue limestone. It may be traced from Danville near the center of the State across into Ohio, as far up as Dayton, and from Maysville to Madison, Indiana. Along the bluffs at Maysville it is 1,000 feet thick, lays in seams, is easily quarried, and is excellent for building purposes. 2. Cliff limestone. This formation is found immediately above the blue limestone, and is easily distinguished from it by containing less clay and more sand. 3. Slate or shale, highly bituminous. It rests on the cliff limestone and abounds in iron pyrites, mineral springs, etc. 4. Sandstone. In this foundation are found superior qualities of freestone and grind-stone. It overlies the bituminous shales. 5. Cavernous limestone. This formation is seen in the numerous caves and openings throughout the central parts of Kentucky. Associated with it are often found flint and horublende. 6. Conglomerate coal series. This formation rests on the cavernous, and is from 80 to 300 feet thick. In it are found quartz and silicia. Directly above it is the coal formation. The minerals found in Kentucky are bituminous, cannel, and stone coal, iron ore, salt, petroleum, sulphur, lead, alum, copperas, hydraulic limestone, fire-brick, potters' clay, white limestone and saltpetre. The coal formation in Kentucky occupies two distinct and separate fields. (A) The coal field of the Upper Ohio in East Kentucky. It includes all east of a line beginning at Greenupsburg and extending southwest by Irvine, Somerset and Jamestown to the Tennessee line. It is a part of the great field that extends over West Pennsylvania, Virginia, Ohio, Tennessee and Alabama. (B) The coal field of the Lower Ohio. This field may be indicated by an irregular line drawn from near the mouth of the Wabash to include Henderson, Daviess, Hancock, Ohio, and most of Union, Hopkins, Muhlenburg, Butler, Edmonson, Grayson and parts of Breckinridge, Hart and Warren counties, and is a part of the great field covering Illinois, Indiana, Missouri and Iowa. It is called by Prof. Owen the coal field of Western Kentucky, and described by him as beginning on the Ohio at the mouth of Treadwater river, extending up the valley of that stream into the northern part of Christian county, its south boundaries running by the headwaters of Pond river near the lines dividing Muhlenburg, Todd, Logan and Butler counties, crossing Barren and Green rivers, between the north of Jasper river and the junction of Barren river, thence extending along the divide between these two rivers through Warren and Edmonson counties, to near the mouth of Nolin creek, thence north to the mouth of Dismal creek. An outlay of the formation stretches east to the confines of Grayson and Hart counties, and even to the waters of the Roundstone, but the main boundary takes from Dismal creek a southwest course south of Grayson Springs near the sources of Clay Lick and Caney creeks, towards the falls of Rough creek, thence north by the sources of Panther creek nearly along the line dividing Hancock and Breckinridge counties until it strikes the Ohio river again at the great South Bend. The total area of the coal fields of Eastern and Western Kentucky is 12,000 square miles, or one-third the entire area of the State. Three varieties are found: 1. The common bituminous caking coal. 2. English cannel coal. 3. Stone coal. The East Kentucky coal field is vastly rich in iron stones, especially towards its base in Greenup and Carter counties. Fifty-eight ores have been analized from Greenup county, and some from Carter. Thirteen different specimens of pig-iron ore were produced from them, and fifteen furnace slags. These ores are all interstratified as beds conformable to the associated coal measures. The eastern coal field in Greenup and Carter counties south of the Ohio river, shows, in a height of 740 feet from the Tygart creek sub-carboniferous limestone up the Rough and Ready ore bank, which supplies the Sandy Furnace, no less than fourteen distinct beds of ore, from three inches to four feet in thickness each that yield from twenty-five to sixty per cent. of iron from the raw ore. One of these beds on the east fork of the Little Sandy, near the Lexington and Big Sandy railroad located line, contains eleven per cent. of bitumen as well as thirty-two per cent. of iron, and may be called a "block band" ore, averaging twelve feet in thickness. The coal formation of Western Kentucky consists of two groups, the upper and lower set of coal measures, separated by a sandstone called the "Anvil Rock," also divided by a dislocated anticlinal axis extending southeast from Gold Hill, Illinois, across the Ohio river at Shawneetown to Bald Hill in Union county. The estimated total thickness of the carboniferous strata in this coal field is 3,429 feet. The lower strata being 1,029 and the upper 2,400 feet. In the lower group there are ten coal seams all but one of which are workable. In the upper group there are eight workable seams distributed through a thickness of 2,000 feet of strata. The united thicknesses of all these coal seams is forty feet. The coal of the western formation is a very pure bituminous, having a specific gravity of from 1,28 to 1,40. It yields from fifty to sixty per cent. of coke. The average volitile matter exceeds forty per cent. Ashes from five to six per cent. A solid cubic foot of this coal weighs eighty pounds, a cubic foot in lumps forty-five pounds. It somewhat resembles the splint coal of Scotland. Compact slaty varieties like the Breckinridge cannel, yield sixty per cent. of volitile matter. . . . . The Louisville *Commercial Gazette* alludes to some lead ore brought from Franklin county. We trust that the lead fields of Kentucky will be properly developed. . . . . A recent number of the Mount Stirling *Sentinel* says: We have seen some specimens of iron and lead ore and lithograph stone, discovered by Mr. D. De Mortimer, in Wolfe and Owsley counties, about twenty-five or thirty miles from this place. The iron and lead ores are the richest specimens we have ever seen, and exist in large quantities. The lithographic stone the doctor pronounces superior to that imported from the old world, and to be the only quarry yet found in the United States. He exhibited to us several pieces which he had polished, and in smoothness they exceeded the finest razor hones. The quarry, he says, is inexhaustible—extends for ten miles, and can be easily worked. The various purposes to which the rock can be applied, render it of untold value. He also showed us samples of cannel coal found in the same counties, which are the best we have ever seen.

Missouri.

Veins of coal, says an exchange, have been traced in the south-eastern part of this State from the mouth of the river Des Moines through twelve counties into the adjoining Indian territory; from Glasgow, up the Missouri river, to the border of Iowa; and from St. Joseph to Shelby, showing the existence of a coal area of more than 26,000 square miles in the northern and western parts of the State. The thickest of these beds varies from five to six feet, and altogether they will furnish from twelve to fourteen feet of good coal. They extend over an area of 500 square miles in Macon county, 400 square miles in Livingston, 400 square miles in Linn, and 200 square miles in Clarion—together 1,500 square miles in these four counties alone. On the estimate that every foot in depth of workable coal will yield 1,000,000 tons per square mile, we have an aggregate of 1,500,000 tons for every foot in these beds. Deducting one-half the thickness for waste, it gives 8,000,000 tons of coal in the region stated, within easy transporting distance of the great Mississippi and Missouri rivers. Shelby county has also some coal, but is not at present within the range of profitable mining. Of iron, Missouri possesses truly wonderful deposits. Iron Mountain, which is the largest mass of specular oxide yet explored in the State, is 228 feet in height, and its base covers an area of 500 acres, which gives 1,655,280,000 cubic feet, or 23,187,315 tons of ore. Shepherd Mountain is an admixture of specular and magnetic oxides, found in a naturally pure state in strata of porphyry. The veins vary in thickness from two to fourteen feet. Pilot Knob is almost one solid mass of sillecious specular oxide, 581 feet high, and covering an area of 360 acres. The lowest estimate of available ore contained in it has been put at 13,972,733 tons. There is ore enough of the very best quality within a few miles of Iron Mountain and Pilot Knob, above the surface of the valleys, to furnish 1,000,000 tons per annum for the next hundred years. All these ores are well adapted to the manufacture of pig iron; and those of Iron Mountain and Shepherd Mountain are used for making blooms for the Catalan process, large establishments for which exist at Pilot Knob and Valley Forge. The Iron Mountain Railway Company transport Pig Iron from the mines at three dollars per ton freight to the city of St. Louis, where there are extensive rolling mills and manufactories. The lead region of Missouri extends over an area of 6,000 square miles, and stands next to iron in abundance. Numerous mines have been worked for more than fifty years, and few or none have as yet been exhausted; indeed, many are at this present moment found to be richer in their yield than they were fifty years ago. Copper is found in fifteen different counties of the State, though it has not as yet been worked to any extent. Besides the minerals cited, there have been found extensive deposits of zinc, some gold, tin, platina, cobalt, nickel, manganese, emery—in fact, of almost every mineral of any economical value—and in quantities that pay a handsome profit. Granite, pipe-clay, fire-clay, paint and cement earths, limestone, and different varieties of marble are also obtained in abundance. All these deposits underlie one of the richest agricultural regions on the American continent, and within easy reach of the market.

Arizona.

Letters to June 14th speak of the mines thus: I would now speak of the Arizona mines as I saw them; they have no similtude to any others that I have seen in the many mineral regions which I have visited. There is much of quartzite in the gold yielding mines, yet it is easily crushed to powder, and in washing displays at once its wondrous richness. Many of these rich mineral districts are in mountains heavily timbered, or woodland cleared of all underbrush, and with flowing streams of pure, delicious water, and current enough to work mills without the aid of steam power in some of the districts. It will, there, cost but little to extract the rich metal when mills are introduced into these districts—say not to exceed five dollars per ton, all expenses included—that is, provided no incorporated companies be unfortunately introduced into the Territory, with Presidents, Treasurers, Secretaries, Superintendents and their horses, and trustees—then of course better leave the mines in their present untroubled repose, for no mines are rich enough for such experiments—proof, Washoe, Esmeralda, &c. Once that capitalists will construct mills in the Territory, (and it would be a most profitable investment,) there would be an inflow of population greater than that to poor, unfortunate Washoe in '59 and '60, and then we would hear no more talk of the miserable, puerile, starving, sparsely scattered Apaches. . . . . From the *Miner*, of May 23d, we glean the following: A correspondet writing from Williams' Fork, says: "Martin & Co., (Lightner,) of San Francisco, are working about two hundred men, mostly Mexicans, and taking out about two hundred sacks of copper ore per day. They have shipped some four thousand tons this spring, and will ship by the next boat one hundred tons more. They are taking out and sacking one hundred and twenty sacks per day at the Mineral Hill mine. The Company are working some nine mines, including the Challenge mine, near Empire Flat. The ores taken from these mines average about thirty per cent. The Planet, situated on Williams' Fork, about fifteen miles from the Colorado river, and about three miles from Mineral Hill, is also being worked extensively, principally by Americans. This Company is shipping considerable ore. Charles Hamilton is Superintendent of the mines, and, by the way, a very good fellow. Mr. Thompson is working a mine called the Eliza, in close proximity to the Planet, and is now placing reduction works upon the same, which will be in operation in the course of one or two months. Mr. T. is a gentleman of much experience, and represents a responsible company in San Francisco. His mine is entirely worked by Americans. The prices paid for labor range from fifty to seventy-five dollars per month.

Idaho.

A correspondent of the *Alta* writes from Boise City, June 1st: "A French gentleman of the name of Charles de la Blume, has lately tested a new (?) mode of obtaining gold and other metals from quartz, and if his process answers as he reports, it will produce a total revolution in machinery. All he requires is a furnace and pans, or arastras, to amalgamate in. The wood and rock are piled up in a kiln or furnace, and burnt; whilst burning he throws some chemical mixture into the burning mass; as soon as sufficiently burnt, the rock or ore is put into the amalgamating pans, and the first process having disintegrated the rock, in a very short time the amalgamating process is complete. He says the cost at Rocky Bar (where everything is high) is $4 a ton, and that his experiments thus far have been perfectly successful. He is now trying it on a large scale, and next week I shall learn with what success. He divides the expenses: wood, $1; labor, $1; chemicals, $2; per ton of rock." . . . The owners of the lead Robert Burns have struck the vein, and find it over twelve feet thick, and the rock prospecting as richly as the famed Atlanta. The latter lode is reported at from twelve to sixty feet wide; but from observation I think sixteen feet is about the average thickness. Once fairly open, I am of opinion that the Yuba will far surpass any other auriferous quartz districts in the Territory, as the lodes are not only rich in gold but are wide, and their dip is small, making them more easy to work by shafts as well as tunnels, and from their width the wall rock need hardly ever need be touched, saving thus all expense of removing anything but pay rock. On Red Warrior Creek, one and a half miles southwest from Rocky Bear, the Red Warrior and Bear Creek Tunnel Company, of which Rasey Biven, Esq., is chief executive, have run 350 feet into the mountain, cutting through various small strata of quartz, in all of which they found gold. They expect to strike a lode at about 400 feet from the entrance of their tunnel. It is also said that Dr. Farnham, late Superintendent of the New York and Idaho Company's mill, is on his way back from New York, where he has formed a company to run a tunnel through the same mountain, about 1,000 feet lower down the creek. . . . At Bois Basin the placer

mines are in full operation, but labor is scarce, wages $6 to $8 a day for mining hands. Water on the hills and high bars does not last long, and every energy is being used to make money while it lasts. John Chinaman has taken Idaho City and neighborhood, not less than 400 having come in this Spring.

The *Oregonian* of June 2d notes the discovery of coal within eight miles of Ruby City, and very truly remarks that it is one of the most important discoveries in that section, inasmuch as timber, for the purposes of mining, is very scarce, and cannot be obtained in quantities sufficient for the demand for fuel. This coal appears to be of excellent quality.

Michigan.

From the Lake Superior *Miner* we condense as follows: Favorable intelligence has been received from several of the mines in the Ontonagon district. A mass estimated at seven to eight tons was thrown down from the stopes over the eighth level at the Rockland this week, and the prospects for one of the best paying stopes in the mine are good. . . The Vein has been reached in the second open cut on the new vein at the Minnesota, but it did not show much copper on Tuesday. It will probably be opened at another intermediate point between the present pits before any shaft is commenced. . . The large mass from the National, with some other finer mineral—7½ tons in all—was successfully smelted at one charge on Wednesday. Everything shows favorably for an increase of mineral for the smelting works the remainder of the season. . . In the Keweenaw district, winze has been sunk on the main vein from X to XX fms. level 215 feet in depth, from surface which will probably be enlarged for a shaft. One mass of 1,500 lbs. was removed and others are now in sight, affording strong, almost indubitable evidence of paying results in the further prosecution of the work. Viewed at all points the vein is not large, but evidences of value will compare very favorably with any mine of equal extent on the Lake. The entire working force on the mine is fifteen men; aggregate monthly cost about $1,000. When it shall be sufficiently opened, and the price of mineral warrant say fifty men, there can scarcely be a doubt but the Resolute will be a dividend-paying concern. . . Judged by present prospects the Ætna mine belongs to the medium class, being neither very poor nor very rich. They have eighteen bbls. and some small masses ready for shipment, five of the barrels being the best of covert work, with many lumps of five to eight pounds weight of pure mineral. They have also several hundred tons of excellent stamp and barrel work on the burrow, much of which would, ere this, have been in marketable shape but for the utter worthlessness of the first lot of stamp shoes sent them, and the failure of the manufacturers, Messrs. Hodge & Christie, to supply them with others in time when informed of the facts. The mill consists of three batteries, each of five 1,000 lb. heads, the appearance and operation of which, except the shoes, has been satisfactory. Sixteen stamp shoes were sent up, one of which is still nearly as good as new; one broke with a few days' wear, and the other fourteen wore out with from ten days to a month's running—wore down and passed out with the mineral as though they were made of pewter. They are now repairing again, having lost nearly a month since the 1st of May, and if they don't have to spend each alternate month in repairs, may yet make a fair season's work. The washers are Collum's patent and manufacture, and give entire satisfaction as far as tried. . . There is no material change in the Star. . . A correspondent says of the Ontonagon county mines: The veins that yield 750 to 1,100 pounds of mineral copper per fathom, as the mines on the Evergreen range have shown to be the fact, should not be neglected for the Mandan, Girard and Ætna belts, of the extremity of Keweenaw Point. By the way, I was informed at Copper Harbor that the Volcanic mine had a shaft sunk, and then had drifts drove in opposite directions; both drifts came in sand. Are these the true Ætna belts? . . The Lake Superior *Mining Journal* of the 6th inst. seems to have suffered exceedingly from an attack of the glorious Fourth.

Illinois.

Recent geological investigations, verified by actual experiments, seem to establish the fact that a large portion of Southern Illinois, contiguous to the Ohio river, contains valuable deposits of lead. The Louisville *Journal* says that "in the opinion of Professor Lyon, which is confirmed by the uniform experience of miners, there can be no reasonable doubt that the whole region is filled with like veins, lying from thirty to fifty yards apart, yielding ore in paying quantities at a depth below the surface varying in the main from twenty to thirty feet, and reaching down to the enormous depth of from thirteen hundred to sixteen hundred feet, growing richer the deeper they descend. Science and experiment unite in warranting the conclusion that the earth there is literally swelling with lead ore under conditions of development, the most inviting to capitalists.

Georgia.

Some children playing near Augusta, Georgia, on the 2d, found a lump of gold, weiging eleven ounces in a ravine, and several smaller lumps were picked up in the vicinity. On the 3d, three more lumps, weighing respectively, thirteen, nine, and eight ounces, were found in the same place by the owner of the land. They are perfectly solid, and pure gold throughout. Regular diggings have commenced. Ten thousand dollars has been offered for one acre and refused. The affair creates much excitement.

New Mexico.

Correspondence from Fort Union, June 25th, says: Plenty of prospecting is going on everywhere in the Territory. Our Santa Fe files have informed you of discoveries made at or near Albuquerque, Taos, and other places. Some miles from here, a company are sinking a shaft on a copper lead, and you may hear of something big shortly. . . . . Another person writing from Albuquerque, says: Several silver mines have been discovered during the last week which promise to be very good. Give us only enterprising men like they have in Colorado, and we will beat any State or Territory in the Union in richness and abundance of minerals.

British Columbia.

From the Vancouver Island *Colonist*, of June 5, we condense as follows: Great excitement prevails at Williams' Creek, Cariboo. The current rate of wages for the season is from $7 to $8 per day. . . . . Mr. Adams who had just returned from French and McCullough creeks, Big Bend, says that the Munro Company, above the Discovery, on Thusday week, washed out $500 to four men in one day. The rest of the companies were wing-damming and preparing for mining. . . . . On Tuesday night the miners were washed out by a big flood, carrying away wing-dams and doing other damage. The Discovery Company were full of water. . . . On McCulloch's creek things appeared more lively, a great number of men working on the flats and benches. With all the inconveniences of snow, water and weather quite a number were washing from $5 to an ounce a day on the first stratum of clay. There are two strata, the first of a yellow and the second of a blue color. One company had got down through the blue clay to the bed rock, (about 15 feet,) and struck a fine prospect, one piece weighing $13, which was shown to Judge O'Reilly. The men here were very sanguine and in good spirits. Very few of those who have returned have been up the creeks or done any prospecting. Provisions were high. Flour 60c. and scarce,-not a pound to be had at McCulloch's, none nearer than French creek or Wilson Landing. . . . . A new creek was reported to have been found by Weaver and May, twelve miles above Wilson's Landing. They had returned to it a second time, but it was not known what prospects they had struck. They travelled up McCulloch's creek and crossed the Divide on snow shoes. A creek had also been found emptying into French Creek, about four miles above the town, and heading toward McCulloch. There was some difference of opinion as to the prospects obtained, but a number had left with the discoverers to stake out the ground. The snow slides were said to be very heavy on this creek, which would make it late before it could be worked. Mr. Adams says it will take another month or two before much is known of the mines, though he should not be surprised to hear of big strikes being made in the interval. . . . . We hear from the Saskatchewan through a letter to Mr. Donald Gunn and from other sources that the gold mines have been up to fall successfully worked, and have paid usually $10 per day. Exploring parties had gone to the north and discovered good paying diggings on the Athabasca river. Prospects in an agricultural and mining way were very encouraging, and considerable emigration was expected.

Nova Scotia.

The Halifax *Chronicle* of July 12th says: We had the pleasure, yesterday, of seeing and handling a "brick" of gold, weighing 336¼ ounces, the product of 240 tons of quartz, raised at Renfrew on the claim of the New York and Renfrew Gold Mining Co. The lead, when first opened, we are informed by Colonel Ives, the Superintendent, measured about twelve inches in width, and has increased in thickness as they descended into the bowels of the earth, until it now measures eighteen inches, while the quartz is even richer than at the surface, averaging about two ounces of the "simon pure" to the ton. We are pleased to note that our American cousins are receiving large returns for capital invested in our mines, more especially as a short time ago a feeling existed in the States that our gold fields were not all they are cracked up to be.

New BrunswicK.

According to a report contained in one of the St. John papers, the Island of Campobello has been sold by its owner, Captain Robinson, to an American Mining Company for $80,000.

British Africa.

Dates from Cape Town (Cape of Good Hope) to May 14th have been received. The settlement of a treaty of peace between the Basutos and the Free State was progressing satisfactorily. The gold discoveries in Transvaal was confirmed. Several expeditions had left Natal on their way to the diggings.

Oil Summary.

Pennsylvania.

From the Pittsburgh *Price Current*, we learn that at Pithole, on the Holmden Farm Well No 46 is flowing 200 bbls. per day; No. 44, 100 bbls.; No. 43, 150 bbls.; No. 3, 120 bbls.; No. 42, 100 bbls.; No. 2, 20 bbls; No. 108, 8 bbls. . . . . Along the line of the Oil City and Pithole railroad there is said to be considerable activity in building, and boring oil wells. . . . . The Lincoln well and 150 barrels of oil were burnt at Funkville last week. . . . . On Bennehoff Run, the Rencile Well is producing 200 bbls. per day; Beach Well No 53, 25 bbls.; No 50, the Stephenson Farm, 300 bbls. . . . . The oil developments on Cherry Run are very promising. The Pittsburgh Oil Company's well is producing 120 bbls. per day. . . . . The oil well on the Siverly Farm, Pithole, is pumping 250 bbls. per day.

New Jersey.

An oil well has been discovered on the property of Mr. Horne, 80 Broome street, Newark. The water having become distasteful, was pumped out, and when near the bottom the oil began to appear. Several barrels are reported to have been since obtained.

Ohio.

The Athens Petroleum Company have sold out for $3.36, nett proceeds—leaving $3.62 for each 100 shares in return for $100 recently invested therefor!

Michigan.

The oil well now being bored at Niles, has reached a depth of 550 feet. No oil yet.

The Power of Nitro-Glycerine.

To show the tremendous power of the new explosive compound, nitro-glycerine, the following facts are mentioned:—At Fahlun copper mines, in Sweden, a borehole of four feet in depth and one inch in diameter, charged with one pound of nitro-glycerine, caused a fissure in the mountain of twenty feet in one direction; a borehole of seven feet depth and two inches diameter, charged with six pounds, made a fissure of fifty feet in another direction; further, boreholes of ten to eleven feet depth, with charges of four to five pounds detached from 1,000 to 1,500 cubic feet of rock, besides the fissures made in the mountain. A borehole, twelve feet depth and two inches diameter, was charged with five pounds of nitro-glycerine, which gave such an enormous power, that from 5,400 to 6,480 cubic feet of granite, equal to a weight of 7,340—9,816 quintals, was detached, besides causing fissures in the mountain of the length of several fathoms. On April 13, 1865, experiments took place in the Tyskbagar Mountain, in presence of about 5,000 spectators. Five blasts were made in all. The holes were ten feet deep with one and a half inch diameter, and the charge of each borehole was of four and a half pounds of nitro-glycerine, which is equal to one hundred and fifty pounds of gunpowder. The effect was astounding. With a dull report the smaller pieces of rock and stone were thrown seventy feet high, and fell down the mountain with a rattling noise, while large and massive rocks were detached, too heavy to be thrown up, and which have to be reblasted for transportrtion. The pieces of rock thus dislocated were estimated at from thirty to forty cubic cords (equal to 6,480 – 8,640 cubic feet.) The explosion of this compound is incomparably more powerful than that of common powder. The explosion is caused by a pressure without any smoke, and the flame is scarcely visible.

British Bullion Statistics.

The following, says the London *Mining Journal*, of June 9th, are the Government Returns of the Imports and Exports of Gold and Silver Bullion and Specie for four months ending April 30, 1866, from and to the undermentioned places, showing the respective results in favor of and against this country; extracted from the "Accounts relating to Trade and Navigation," published by the Board of Trade:

DECLARED VALUE FOR THE FOUR MONTHS ENDING APRIL 30, 1866.

	Imports.	*Exports.*	*Exp's over Imports.*	*Imp's over Exports.*
Australia	£1,755,741	£ 17,515	.....	£1,738,226
Belgium	102,649	18,881	.....	83,768
Brit. South Africa	2,432	.....	.....	2,432
British Columbia	.....	.....	.....	.....
Brit. North Amer	16,189	.....	.....	16,189
Brazil	72,683	161,558	£ 88,875	.....
Egypt	3,181	2,690,705	2,687,524	.....
France	264,613	1,708,400	1,443,787	.....
Gibraltar	18,618	.....	.....	18,618
Hanse Towns	720,365	120,370	.....	599,995
Holland	44,142	10,491	.....	33,651
Malta	.....	.....	.....	.....
Mex'o & S. Amer.	1,725,434	29,673	.....	1,695,761
Portugal	191,640	.....	.....	191,640
Russia	.....	.....	.....	.....
Spain	14,542	296	.....	14,246
Turkey	.....	.....	.....	.....
United States	765,905	81,894	.....	684,011
West Africa	43,595	36,794	.....	6,801
Other countries	8,514	5,836	.....	2,678
Total	£5,750,043	£4,882,213	£4,220,186	£5,088,616
Less excess exports over imports				4,220,186
Balance				£ 867,830

Copper Rolling.

From the report of the eight census it appears there are seven establishments in the United States for copper rolling. These establishments employ 413 hands, and have a capital invested of $2,470,000. The cost of material consumed by them is valued at $2,537,000, the cost of labor at $157,080, and the annual value of products for the year ending 1st of June, $3,196,788, of which Pittsburgh gave one-fifth.

Mineralogical Birds-Eye View of the Pacific Coast.

Professor Wm. P. Blake, in a report to the California State Board of Agriculture, gives a clear and simple account of the location of minerals on the Pacific Coast. He says, if we attempt to delineate by colors upon a map, the geographical distribution of the gold, silver, copper and quicksilver localities of the Pacific slope, we obtain a series of nearly parallel belts or zones following the general course or tread of the

mountain chains of the coast. First comes the quicksilver zone, of which the coast range is the depository, and in connection with it, he speaks of petroleum, sulphur, lime, &c. After crossing the coal beds, partly visible—as at Mt. Diabolo—and partly underlying the Sacramento valley, we come to the copper zone, which can be traced almost uninterruptedly along the lower hills of the Sierra, from Mariposa to Oregon. Next comes the gold bearing zone, in lines of quartz ledges, following the same general northwest and southwest course. After crossing the crest of the Sierra eastward, we come into a zone where the silver is mingled with gold, extending from Arizona and Mexico, on the south, to Idaho on the north. Next comes the silver zone—as in the Reese River mountain—and associated with it are antimony, arsenic, &c. This grouping is, in its turn, replaced by the gold bearing sulphurets of the Rocky mountains.

GOLD.

COMPANY.	SHARES.	STOCK.	SITUATION OF MINE.	SECRETARY & PLACE OF BUSINESS.
Acadia			Nova Scotia	H. W. Nelson, 24 City Ex., Boston.
Ada Elmore	200,000	$2,000,000	South Boise, Idaho	B. Lawrence, 157 B'way, N. Y.
Amber	300,000	300,000	Greene Co., Penn	Geo. W. Grove, 276 S. Third, Phil
Aibton		300,000	Halifax, Nova Scotia	H. W. Nelson, 24 City Ex., Boston
Alps	100,000	250,000	Illinois Central Dist., Col.	J. Stanton, Jr., 25 Nassau, N. Y.
Ascot	50,000	5,000,000	Sherbrooke, Canada E	G. H. Morrison, 17 Nassau, N. Y.
Atlantic				Chas. Barett, 13 Doane, Boston.
Atlatic & Pacific	50,000	5,000,000	Humboldt T., Humboldt co.	J. N. Sewall, 8 Broad, N. Y.
American	100,000	5,000,000	Gregory Dist.	
American Flag	60,000	600,000	Nevada Dist., Col	H Foles, 71 B'way, N. Y.
Astor	200,000	1,000,000	On Comstock Lode	J. Chapman, 71 Broadway, N. Y.
Baltic			Colorado	New York.
Bates & Baxter			Colorado	New York.
Bay State	200,000		Colorado	Lem'l Bangs, Boston.
Benton	100,000	500,000	Colorado	F. W. Capen, 44 Ex. Pl., N. Y.
Black Hawk	50,000	5,000,000	Gilpin co., Col	D. Littlejohn, 81 John, N. Y.
Beacon		500,000	Halifax co., Nova Scotia	J. B. Post, 20 Ex. Pl., N. Y.
Bobtail	100,000	1,000,000		J. Stanton, Jr., 25 Nassau, N. Y
Briggs	10,000	1,000,000	Gilpin co., Col	D. Littlejohn, 81 John, N. Y.
Bradshaw	250,000	1,000,000	Yavapai County, Arizona	O. H. Conover, 219 Dock st., Phil.
Burroughs	100,000	1,000,000		L. Bangs, 22 Pine, N. Y.
Bullion	200,000	1,000,000	Bannock, Montana	69 Liberty, N. Y.
Bullion Consoli.	300,000	300,000	Summit and Clear Creek, Col.	J. P. Whitney, 19 Lindall, Boston
Calvin	200,000	1,000,000	Clear Creek co., Col.	J. P. Whitney, 19 Lindall, Boston
Canadian				A. Call, 7 Phœnix B'l'g, Boston.
Chem. Gold&S. R				64 B'way
Ch. Un. Gold Co.	240,000	1,200,000		Jesse C. Pitts, 69 Liberty
Chebucto	100,000	500,000	12 miles from Halifax	J. E. M. Gilley, Boston.
Clarendon		500,000	5 miles from Halifax	H. Doane, 41 State, Boston.
Chase	5,000	500,000	Colorado	W. F. Lawton, 81 John, N. Y.
Central Gold M.	20,000	1,000,000	Central City, Col	L. Bangs, 17 Nassau, N. Y.
Central Mining	200,000	1,000,000	Colorado	56 Exchange Pl., N. Y.
Chandiere	100,000	500,000	5,000 A Famine Riv. C. E.	Wm. B. Fowle, Boston.
Cobden	100,000	1,000,000	Idaho	New York.
Colonial				W. N. Ely, 7 Trav'r B'l'g, Boston.
Colorado Boston			Colorado	R. C. M'Laughlin, 60 State, Bos'n.
Colorado N. Y.			Colorado	42 Pine, N. Y.
Coleman			Colorado	New York.
Columbia	30,000	3,000,000	Austin City, Nevada	10 Pine, N. Y.
Consuelo Gold				54 William.
Consol Gregory	50,000	5,000,000	Gregory Dist., Col.	30 Pine, N. Y.
Cook & Kimball	1,000	150,000	Colorado	W. W. Baldwin, 35 Wm., N. Y.
Copalinshee	250,000	5,000,000	Parke co., Col.	J. C. Stocker, 137 B'way, N. Y.
Corrisannee	100,000	1,000,000	Colorado	New York.
Commonwealth			Nevada	Philadelphia.
Corrydeon	100,000	2,500,000	Gilpin co., Col.	46 Exchange Pl., N. Y.
Continental	20,000	2,000,000	Gregory Dist., Col	115 Liberty, N. Y.
Central Gold	200,000	1,000,000		L. Bangs, 22 Pine, N. Y.
Dauphin & Colo.	200,000	1,000,000	Colorado	John S. McNullin, 423 Walnut, Pa.
Day & Bushnell	300,000	3,000,000	Colorado	T. Chalmers, Jr., 20 Ex. Pl., N. Y.
De Lery		10,000,000	Chandiere Valley, Canada E.	J. M. Winchell, 72 Cedar, N. Y.
Denver	50,000	1,000,000	Gilpin & Clear Creek, Col.	J. Wadsworth, 61 Cedar, N. Y.
Devonshire				W. Stockbridge, 74 Fr'klin, Bos'n.
Downieville	300,000	300,000	Colorado	J. C. Harriott, 70 Wall, N. Y.
Dorset			Chandiere River, C. E.	F. McJimsey, 59 Wm., N. Y.
Eagle	100,000	1,000,000	Gold Dirt Dist., Col	J. P. Davies, 81 John, N. Y.
East Bannack	100,000	200,000	Bannack City, Montana	J. Callender, 48 Ex. Pl., N. Y.
Eldorado	500,000	2,500,000	San A Dist., 9 miles of Austin	208 S. Fourth, Phila.
Empire Mill & M				O. F. Griffin, San Francisco.
Enriquetta			Arizona	New York.
Esperanza		500,000	Star D., Humboldt co.	117 Broadway, N. Y.
Etna	50,000	500,000	Nevada Dist., Col.	C. W. Bryant, Boston.
Excelsior	20,000	200,000	Central City, Col.	J. Weatherbee, Jr., 11 P. B'g, Bos.
Fairmount	20,000	200,000	Colorado	John P. Harker, 109 N. 6th, Phil.
Famine Falls	100,000	1,000,000		D. L. Dodge, 80 B'way, N. Y.
Garrisons	100,000	5,000,000	Colorado	C. G. Mease, 29 William, N. Y.
Gem	25,000	1,250,000		H. K. Gates, 191 B'way, N. Y.
Georgetown			Colorado	New York.
Gilbert River				C. E. Jackson, 18 Phe'x B'g, Bos'n.
Gilpin				C. W. Galloupe, 76 State, Boston.
Golconda	250,000	5,000,000	Sherbrooke, Canada E	W. H. Adams, 19 Broad, N.Y.
Gold Field				C. B. Cowling, 39 Kilby, Boston.
Gold Rock	5,000	500,000	Central City, Colorado	R. M. Lockwood, 113 Wall, N. Y.
Gold Hill	50,000	500,000	Colorado	W. T. Eustis, Boston.
Gold Mountain	600,000	6,000,000	Clear Creek Co., Colorado	25 Nassau, New York
Gold Min'g of Col	50,000	5,000,000	Colorado	E. Latham, 23 William, N. Y.
Golden Gate	60,000	600,000	Sum., High'd & Mt'n C. Mon	J. Morse, Jr., 117 B'way, N. Y.
Gunnel Central			Colorado	70 Broadway, N. Y.
Gunnel Gold	300,000	3,000,000	Colorado	F. E. Roelfson, 78 & 80 B'way, N. Y.
Gregory	20,000	1,000,000	Colorado	Thos. Wildes, 17 William, N. Y.
Granada	50,000	125,000	Colorado	J. Stanton, Jr., 25 Nassau, N. Y.
Great Western	60,000	600,000	Russel Dist., Col	F. Kemeys, 70 Broadway, N. Y.
Gunnel Gold	100,000	1,000,000	Colorado	F. E. Roelofson, 78 B'way, N. Y.
Halifax				A. Case, 7 Phœnix B'l'g, Boston.
Harmony				Demas Barnes, 21 Park Row.
Her'it'ge Ranch	30,000	300,000	El Dorado, Cal.	
Hope	80,000	2,000,000	G'ld Dirt Lode, Gilp. co., Col.	J. P. Davies, 81 John, N. Y.
Holman	150,000	300,000	Clear Creek co., Col.	J. O'Neill, 23 Wm. N. Y.
Humboldt	100,000	500,000	Colorado	78 B'way.
Idaho Gold	100,000		Montana	5 Pine, N. Y.
Isaac's Harbor	100,000	500,000	Isaac's Harbor, Nova Scotia	W. F. Shirley, 137 B'way, N. Y.
Isle Royale				44 Ex. Pl.
Kansas Colorado	100,000	1,000,000	Colorado	J. G. Greenlies, 111 B'way, N. Y
Kent				G. H Wyman, 19 Phe'x B'l'g, Bos.
Kip & Buell	100,000	200,000	Colorado	J. C. Harriott, 70 Wall, N. Y.
Knickerbocker	100,000	1,000,000	Colorado	F. Avery, 78 B'way, N. Y.
La Crosse	100,000	$1,000,000	Nevada Dist., Colorado	H Fales, 71 B'way, N. Y.
Liebig	200,000	$1,000,000	Colorado	
Lake Major	12,000	600,000	Nova Scotia	Fred. Franck, 113 Water, N. Y.
Mariposa Gold	100,000	10,000,000	Bear Valley, Cal.	G. W. Farlee, 34 Wall, N. Y.
Mammoth	50,000	500,000	Colorado	J. Jarrett, 41 Liberty, N. Y.
Manhattan	100,000	1,000,000	Colorado	W. R. Lothrop, 172 B'way, N. Y
Massachus tts	250,000	1,200,000	Gilpin co., Col.	W. D. Briggs, 11 Phe'x B'l'g, Bos
Merchants	30,000	600,000	Alturas co., Idaho	Jas. K. Selleck, 157 B'way, N. Y.
Metropolitan				
Mountain Pride	100,000	1,000,000	B'r C'k, St. Bec., Idaho	29 Pine, N. Y.
Montague	50,000	500,000	near Halifax, Nova Scotia	C. B. Cowling, 39 Kilby, Boston.
Mount Alpine			Grallith Dist., Clear C'k, Col.	J. B. Randol, N. Y.
Mount Vernon	500,000	5,000,000	Mt. V. & Manc'th Dist., Nev.	25 Park Row, N. Y.
Mount Vista	50,000	500,000		J. Chapman, 23 Nassau, N. Y.
Montana	100,000	400,000	Nevada, Ills., Greg'y, Col.	A. L. Guerber, 54 Wm. N. Y.
Monte Christo	100,000	2,000,000	White Pine District, Nev.	Thos. Dunlap, 413 Chestnut, Phil.
Montezuma	100,000	500,000	Colorado	F. B. Webster, Boston.
Montrose	100,000	1,000,000	Clear Creek co., Col.	C. A. W. Sibley, 80 B'way, N. Y.
Morning Star	5,000	5,000,000	Owyhee co., Idaho	E. M. Barnum, 137 B'way, N. Y.
Mexican Pacific	100,000	10,000,000	Mexico	J. Mackie, 88 Wall, N. Y.
Mclones & Stan			Calaveras co	606 Mont, San Francisco.
National	300,000	3,000,000	on So. Boulder C'k, Col.	31 School, Boston.
Nevada Star				25 Pine, N. Y.
New England	50,000	150,000	Black Hawk, Col.	J. Weatherbee, Jr., Boston.
New Mexico			near SantaFe	
New Gregory				W. A. Kent, 144 State, Boston
New York City	50,000	5,000,000	G'd Canon P't, Land. co. Nev.	10 Pine, N. Y.
New York Dist.	50,000	500,000	Austin, N. Y. Dist., Nevada	71 B'way, N. Y.
New York of Col	100,000	1,000,000	Colorado	F. E. Roelfson, 74 B'way, N. Y
N. Y. & Nevada	100,000	1,000,000	Nevada	J. J. Osborn, 30 Pine, N. Y.
N. Y. G Min'g	100,000	1,000,000	Colorado	F. E. Roelfson, 78 & 80 B'way.
N. Y. & Eldor'do	250,000	2,500,000	Nevada	G. H. Munroe, 106 B'way, N. Y.
N. Y. & Idaho			Idaho	180 Chatham, N. Y.
N. Y. & Santa Fe			Nevada	New York.
N. Y. & Owyhee		1,000,000	Owyhee co., Idaho	6 Pine, N. Y.
N. Y. & Oro Fino	10,000	1,000,000	Owyhee co., Idaho	137 Broadway, N. Y.
N. Y. & Reese R			Nevada	New York.
N. Y. & Reufew				2 Murray, N. Y.
N. Y. & Washoe			Nevada	New York.
North Clear C'k	100,000	1,000,000	Gilpin co., Col.	J. Francis, 80 B'way, N. Y.
Nova Scotia				Chas. Barrett, 13 Doane, Boston
N. Y. & Nova Sc	100,000	1,000,000	Tangier, Nova Scotia	Jos. E. Gay, 3 Hanover, N. Y.
National S Min'g		1,500,000	Owyhee co., Idaho	115 B'way, N. Y.
Occidental	5,000	500,000	Nevada & Ills. C. Dist., Col.	100 B'way, N. Y.
Oldham				Chas. Barrett, 13 Doane, Boston.
Ophir	62,500	625,000	on Comstock Lode, Nevada	Moses A. Hopkock, 45 William.
Pacific	40,000	4,000,000		24 Pine, N. Y.
People's	100,000	5,000,000	Alpine & sierra cos	23 Nassau.
Peck				F. R. Sawyer, 144 State, Boston.
Perigo	60,000	3,000,000	Ind. Dist., Gilpin co., Col.	J. W. Stratton, 90 B'way, N. Y.
Pine Mountain	30,000	3,000,000	Pine Mountain Dist., Nev.	F. K. McCully, 157 B'way, N. Y.
Pioneer & Inskip			Buena Vista Dist., Nevada	15 Nassau, N. Y.
Phila. & Color'do	20,000	1,000,000	Central City, Col.	E. W. Clark & Co., Phila.
Phelps & Gilm're	200,000	1,000,000	Colorado	W. H. Steudevant, 25 Nassau.
Pleasant Valley	125,000	1,250,000	Colorado	J. S. Lyon, 69 Wall, N. Y.
Pontiac	50,000	1,000,000	Ill. Cen. M Dist., Col.	R. H. Rickard, 19 Nassau.
Prescott	100,000	1,000,000	Central Arizona	69 B'way, N. Y.
Quaker City			Ind't D't. G'd D't City, Col.	103 South Third, Phila.
Quartz Hill	40,000	100,000	Nevada Dist., Col.	J. A. Tyler, 29 Wall, N. Y.
Rancho C'k	10,200	1,200,000	Pine Wood Dist., Nevada	18 Broad, N.Y.
Realito		1,000,000	G'd Hill D., Storey co., Nev.	117 B'way, N. Y.
Reese River Pr'l	100,000	1,000,000	AmadorDist., Lander Co., Nev	Elijah Aliger, 67 Wall, N. Y.
Renfrew				W. Stockbridge, 74 F'klin, Bos'n.
Republic	15,000	1,500,000	Amador D., Lander co., Nev.	67 Exchange Pl., N. Y.
Rocky Mountain	50,000	500,000	Grey & Empire Dists., Col.	E. L. Bolles, 70 B'way, N. Y.
Reciprocity	100,000	1,000,000	Canada East	B. B. Grant, Jr., 71 B'way, N. Y
Scorpion			Virginia City, Nevada	617 Clay, San Francisco.
Sherbrooke	100,000	1,000,000	Sherbrooke, Canada East	F. Schumacker, Cliff, N. Y.
Silas Wright	60,000	600,000	Amador D., Lander co., Nev.	18 Wall, N. Y.
Silver State	100,000	500,000	Humb't Starr. Pr. R. D Humb't co., Nevada	R. S. Miller, 49 William, N. Y.
Silver Wave	300,000	3,000,000	Reese riv., Lander co., Nev.	Emmet Blair, 243 B'way, N. Y.
Smith & P'rmlee	125,000	2,500,000	Colorado	G. A. Lathrop, 4 Broad, N. Y.
Smithfield	100,000	400,000	Gilpin Co., Col.	A. F. Baum 48 Broad st., N. Y.
Spanish		3,000,000	La Plata, Churchill co., Nev.	228 South Third, Phila.
So. Clear C'k			Colorado	Canastota, N. Y.
Starlight Ledge	50,000	500,000	P'ville, El Dorado co.	
Star of Color	200,000	2,000,000	Colorado	J. N. Powers, 22 Pine, N. Y
Standard	50,000	500,000	Gregory Dist., Col	T. A. Mitchell, 70 B'way, N. Y
Steptoe	20,000	2,000,000	G'd Can., Lander co., Nev.	10 Pine, N. Y.
Sterling City		1,200,000	Colorado	New York.
Stewart	100,000	500,000	Colorado	C. Durham, 31 Exchange, Boston
Suffolk				Carlos Cobb, 22 William, N. Y.
Southard				Wm. Wallace, 11 Doane, Boston.
Stafford				C. E. Jackson, 15 Central, Boston
Tascher	100,000	1,000,000	Colorado	F. J. Wright, 8 Wall, N. Y.
Texas	50,000	500,000	Black Hawk City, Colorado.	Wm. E. Parish, 155 B'way, N. Y
Triunfo			San Antonio, L. Cal.	San Francisco.
Union	240,000	12,000,000	Colorado	F. A. Potts, 110 B'way.
United States	75,000	1,500,000	Colorado	J. P. Stevens, N. Y.
University				31 Nassau, N. Y.
Virginia City	250,000	250,000	Nevada	J. B. William, 78 & 80 B'way.
Wauba Yuma	600,000	6,000,000	Arizona	35 William, N. Y.
Waddingham	48,000	1,200,000	Alturas co., Idaho	Jas. K. Selleck, 157 B'way, N. Y
Waverley				J. Leighton, 97 State, Boston
Windsor Gold M	10,000	100,000	Colorado	25 William, N. Y
Wilson & Cass			Colorado	New York.

LEAD.

COMPANY.	SHARES.	STOCK.	SITUATION OF MINE.	SECRETARY & PLACE OF BUSINESS.
Ancula	100,000	$ 500,000	Duchess co., N. Y.	G. Furman, 77 Cedar, N. Y.
Bucks County	40,000	200,000	Bucks co., Pa.	R. R. Sinclair, 53 Ex. Pl., N. Y.
Canada	50,000	250,000	Canada	Alb. Case, 7 Phe'x B'l'g, Boston.
Clute	110,000	550,000	Macomb T. St. Law. co., N. Y.	Bev'l'y S. Merrill, 42 Cedar, N.Y.
Continental	200,000	500,000	Martinsburg, N. Y.	J. Sickles, 57 Ex. Pl., N. Y.
Eastport	100,000	1,000,000	Eastport, Me.	R. Vose, 54 William, N. Y.
Erie	40,000	4,000,000	Orange co., N. Y.	Ogden Gaul, 25 Pine, N. Y.
Hampton	100,000	500,000	Hampshire co., Mass.	C. W. Bryant, Boston.
Jefferson				65 Wall, N. Y.
King's Hill	10,000	50,000		W. L. Haskin, 180 B'way, N. Y.
Lake Superior	200,000	1,000,000	{ Secs. 5 & 36 T., 49 & 50 R., { 28 & 29 Marquette co., Mich.	C. L. Mather, N. Y.
Lancaster	50,000	250,000	Lancaster co., Pa.	J. R. Sibley, 35 Pine, N. Y.
Macomb	110,000	550,000	Macomb T. St. Law. co., N. Y.	C. E. Scofield, 42 Cedar, N. Y.
Maine	50,000	500,000	Eastport, Me.	A. L. Butler, 54 William, N. Y.
Mineral Point	100,000	500,000	St. Lawrence co., N. Y.	H. W. Warren, 60 City Ex., B'stn.
Morgan	100,000	500,000		W. Williams, 42 Cedar, N. Y.
Manhan				40 B'way, N. Y.
Mount Hope	80,000	200,000	Mt. Hope, Orange co., N. Y.	W. Williams, 24 Pine, N. Y.
New Hampshire	100,000	500,000	New Hampshire	W. A. Farrar, 71 B'way, N. Y.
N. Y. & Boston		1,000,000	Chester co., Pa.	S. M. Cockein, 22 William, N. Y.
Oswegatchie				24 Pine, N. Y.
Owens Lake	50,000	250,000		C. W. Bond, 78 Cedar, N. Y.
Phœnix	50,000	250,000	Columbia Co., N. Y.	G. W. Butler, 54 William, N. Y.
Placentia Bay	200,000	1,000,000	Newfoundland	J. Simpkins, 29 Wall, N. Y.
Ramsay	20,000	500,000	Township Ramsay, C. W.	C. W. Bryant, Boston.
Rochester	200,000	500,000		J. A. Ferguson, 8 Wall, N. Y
Rossie				24 Pine, N. Y.
Rosa Clara	100,000	1,000,000		H. Lathrop, 25 Nassau, N. Y.
St. Clair	100,000	1,000,000		H. B. Hawkins, 25 Nassau, N. Y.
St. Joseph	100,000	1,000,000	St. Francis Co., Missouri.	Jas. R. Knapp, 6 Broad, N. Y.
Shawangunk	100,000	500,000	Mt. Hope, Orange co., N. Y.	E. P. Ackerman, 48 Pine, N. Y
Sussex	125,000	625,000	Sparta Town, Sus'x co., N. J.	F. H. Stow, 53 Cedar, N. Y.
Walkill			Orange co., N. Y.	W. A. Scott, 11 Wall, N. Y.
Warren			Warren, Grafton co., N. H.	J. S. Christie, 100 B'way, N Y
White Mountain			New Hampshire	111 B'way, N. Y.

SILVER.

COMPANY.	SHARES.	STOCKS.	LOCATION OF PROPERTY.	SEC'Y AND PLACE OF BUSINESS.
Amazon	25,000	$250,000	Nevada	W. L. Louther, 134 So. 3d, Phil.
Argentine	50,000	250,000	Argentine Dist., Colorado	D. L. Demmon, 134 State, Boston
Arizona	100,000	10,000,000	22 m W of Tubac, Arizona	J. B. Randol, 25 Nassau, N. Y
Astor	200,000	1,000,000	On Comstock Lode, Nev	J. Chapman, 71 Broadway, N. Y.
Atlantic & Pac	50,000	1,000,000	Humboldt T. Hum't Co, Nev.	J. N. Sewall, 8 Broad st., N. Y.
Big Smoky	20,000	600,000	Smk'y Hill, Lander Co. Nev.	71 B'way.
Black Eagle	7,000	350,000	Carson, Owyhee co., Idaho	O. D. Gardner, 40 Maiden lane.
Bullion	200,000	1,000,000	Bannock, Montano	55 Liberty street.
Bush	50,000	500,000	Austin City, Nevada	176 Chambers st., N. Y.
Combination	5,000,000	50,000	Nevada	J. W. Stoute, Jr., 155 B'way, N.Y
Colorado Con			Cedar Hill Nevada	New York.
Columbia	30,000	3,000,000	Austin City, Nevada	J. E. Smith, 10 Pine street, N. Y.
Conu. & Nevada	120,000	1,250,000	Averill, Churchill Co. Nev	49 Liberty street, N. Y.
Commenwealth	200,000	2,000,000	Gold Hill, Nevada	78 B'way, N. Y.
Cosmos	10,000		Owyhee Co, Idaho	157 Broadway, N. Y.
Del Norte & S'br			Lower California	New York.
Durango	5,000	500,000		W. R. Garrison 75 W'm st., N Y.
East Bannack	100,000	200,000	Bannock City, Montano	J. Cullender, 49 Ex. P., N. Y.
Empire G. & S.	100,000	10,000,000	Bodie Bluff, Mono	H. R. Gates, 191 Broad'y, N. Y.
Empire and Silver State	20,000	2,000,000	Reese River Dist., Nevada	57 B'way, New York.
Eldorado	500,000	2,500,000	San A 90 m s of Austin, Nev	208 South Fourth street, Phila.
Essex & Diadem	125,000	2,500,000	Sierra dis, Humboldt C. Nev	A. R. Wetmore, 81 Vesey st., N.Y.
Franklin			Nevada	Philadelphia.
Gem	200,000	1,250,000		H. K. Gates, 191 B'way, N. Y.
Globe	100,000	500,000	Austin, Nevada	J. W. Brazier, 26 Pine, N. Y.
Good Hope	20,000	1,000,000	40 m S of Austin, Nevada	80 Broadway, N. Y.
Huron			Montano	New York.
Incas	300,000	300,000	Summit co., Colorado	J. P. Whitney, 19 Lindall, Bost.
Knickerb'r and Nevada	20,000	2,000,000	Union Dis. Nye Co, Nev	H. R. Shotwell, 70 Cedar, N. Y.
Lander Hill			Nevada	74 B'way, New York.
Lincoln		1,000,000	Owyhee Co, Idaho	Canastota, New York.
Lw'r California	40,000	2,000,000	North Part of Lower Cal	55 William street, N. Y.
Madison	30,000	3,000,000	Nevada	W. W. Perkins, 71 B'dway, N. Y.
Macedon			Nevada	Philadelphia.
Manhattan			Nevada	57 B'way, New York.
Merchants	30,000	600,000	Alturas Co. Idaho	157 Broadway, N. Y.
Metropolitan	15,000	1,500,000	Austin City, Nevada	158 Broadway, N. Y.
Morning Star	5,000	5,000,000	Owyhee County, Idaho	137 Broadway, N. Y.
Mount Vernon	500,000	5,000,000	Mount Vernon & Mammoth District, Nevada	New York.
Mount Vista	50,000	500,000		J. Chapman, 71 Bway, New York.
National	15,000	1,500,000	Owyhee Co. Idaho	115 Broadway, N. Y.
Nevada	100,000	300,000	Mountain Wells, D. Ch. co. Nev	323 Walnut street, Phila.
Nevada	120,000	1,200,000	Nevada	E. L. Boiles, 74 B'way, N. Y.
New Y'k & Ione	20,000	2,000,000	Ione City, Nye Co., Nev	71 Broadway, N. Y.
New York	1,500	1,500,000	Austin, Nevada	S. R. Hutchinson, 80 B'way, N.Y.
New York City	50,000	5,000,000	Gold Can Dist. Lander Co. N	10 Pine street, New York.
New Y'k Dis'ct	50,000	5,000,000	80 m I'm Austin, N. Y. Dis. Nevada	S. A. Hopkins, 71 Broadway, N Y
New Y'k & Nev	10,000	1,000,000	Nevada	J. J. Osborn, 30 Pine street, N. Y
N. Y. & Owyhee		1,000,000	Owyhee Co. Idaho	6 Pine street, New York.
N. Y. & Oro Fino	10,000	1,000,000	do. do.	137 Broadway, New York.
N. Y. and Silver Peak	20,000	2,000,000	Nye County, Nevada	R. C. Root, 74 Broadway, N. Y.
N Y. & Santa Fe			Nevada	New York.
N. Y. & Washoe			Nevada	New York.
North Am. M'g			Nevada	Philadelphia.
Ocean Transit		1,500,000	Lower California, Mexico. On Comstock Lode, Nev	24 Pine, N. Y.
Ophir				
Pan Ranagat C'l	50,000	5,000,000	Nevada	26 Pine, N. Y.
People's	100,000	500,000	Alpine & Sierra Counties	8 Pine street, New York.
Phœnix	200,000	2,000,000		48 East 26th street, New York.
Picacho	50,000	2,000,000	Arizona	T. H. Perkins, New York.
Pine Mount'n	30,000	3,000,000	Pine Mount'n Dist. Nev	F. K. McCulley, 100 Bd'way, N. Y.
Pioneer & Inskip			Buena Vista Dis., Austin, Nev	15 Nassau street, New York.
Prescott	50,000	2,500,000	Arizona	T. H. Perkins, New York.
Presidential	125,000	2,500,000	Austin, Nevada	Wm. Lemmon, 17 Broad, N. Y.
Republic	15,000	1,500,000	Amador. D Lander Co. Nev.	67 Ex. Place, New York.
Revenue Exten	50,000	500,000	Lander County, Nevada	W. L. Kite, 142 South 4th, Phila.
Rosario & Carmu	5,244	1,480,000	Sinaloa, Mexico	San Francisco.
San Antonio	60,000	3,000,000	Arizona	C. Lamson, 21 Nassau st., N. Y.
Seminole	7,000	1,500,000	Unionv., Humboldt Co., Nev.	L. G. Wilkin, 119 B'way, N. Y.
Silas Wright	60,000	600,000	Amador. D Lander Co, Nev.	18 Wall street, New York.
Silver Hill	40,000	1,000,000	Nevada	J. C. Hitchcock, 62 B'dway, N.Y.
Silver Series		1,000,000	Lander Co., Nevada	W. B. Rogers, 117 B'way, N. Y.
South Boise, T Co	200,000	2,000,000	Alturas Co., Idaho	A. M. Palmer, 19 Broad st., N. Y
Star Hill	20,000	1,000,000	Nevada	155 B'way.
St'h Cl'r Crk			Colorado	Canastota, New York.
Stephenson	500,000	1,000,000	18 m E of Ft. Fillmore	A. S. Kellogg, 22 Pine, New York.
Steptoe	20,000	2,000,000	Gold Can. Lander Co. Nev	10 Pine, New York.
Sterling City		1,200,000		New York.
Tarshish		1,200,000	Toryabee Range, Un. D., Nev	H. S. M'Collum, 78 B'way, N. Y
Tempest	12,000	1,000,000		L. Rangs, 17 Nassau, N. Y.
Trumfo	200,000		San Antonio, Lo'wr Cal	San Francisco.
Toiyabee	50,000	5,000,000	Pine W'd, Mo'tn Dis. Nev	J. M. Brown, 157 B'wy, N. Y.
Union & El Do.	100,000	1,000,000	Mogul Silver Mo'tn	40 Park Row.
Upper Missouri		100,000	Montana	107 Broadway.
Vedder	21,000	2,100,000	Amador Dist., Nevada	L. G. Bingham, 80 B'way, N. Y.
Wamba Yuma	600,000	6,000,000	Arizona	35 William street, New York.
War Eagle	50,000	200,000	Owyhee Co., Idaho	G. M. Eldridge, 144 S. 4th, Phil.
Washington	22,500	2,250,000	Austin, Nevada	S. R. Hutchinson, 80 B'way, N.Y.
White Mountain			New Hampshire	111 Broadway, New York.

COPPER.

COMPANY.	SHARES.	CAPITAL.	SITUATION OF PROPERTY	SEC'Y., AND PLACE OF BUSINESS.
Adventure,	20,000		Parts of Sections 35, 36, T. 51, N Range 38 W.,	W. H. Smith, 51 Ex. Pl, N. Y.
Etna,	20,000		1226 A in Secs. 6, 7, 18, T. 58, N R 28, W Keweenaw co. Mich.	B. A. Hoopes, 324 Walnut St., Phil.
Alb'ny & Bost'n,	20,000		Secs 7, 8, 9, 10, 11, T. 55, R. 33	Fred. Beck, 43 City Ex., Boston.
Anita,	20,000		Del Norte co., California,	8 Wall St., N. Y.
Algomah,	20,000		W ½ S. 30, T. 51, R. 37,	L. W. Clark, Boston.
Allouez,	20,000		Town 57, R. 32, Sec. 31,	Horatio Bigelow, Boston.
Amy gdl'yd'l,	20,000		E½ Secs. 16, 21, T. 58, R. 30; NW¼ Sec. 5, T. 57, R. 31, 160 A,	F. H. Womrath, 324 Walnut St., Philadelphia.
Arcadian,	20,000		NW¼ Sec. 20, T. 57, R. 33, 160 A,	C. P. Dixon, 48 Pine St. N. Y.
Astor,	20,000		NW¼ Sec. 5, T. 57, R. 31 A 160 A,	W. Boardman, 35 Court St., Boston.
Atlas,	20,000		NE¼ of E½ & NW¼ of NW¼ Sec. 31, T. 57, R. 31,	L. W. Clark, Boston.
Aztec,	20,000		W½ Sec. 31, T. 51, N. of R. 37,	L. W. Clark, Boston.
Bay State,	20,000		SW¼ Sec. 29, T. 58, R. 31,	L. W. Clark, Boston.
Beaver,	20,000		NE¼ Sec. 32, T. 58, R. 31,	A. W. Boardman, Boston.
Bohemian,	20,000		E½ Sec. 31, NW¼ Sec. 32, T. 51, R. 37, W,	R. H. Rickard, 21 Nassau St., N Y. H. W. Warren, 60 City Ex., B'st'n.
Boston,	20,000			H. P. Mount, 3 Hanover St., N. Y.
Canada,	100,000		Brome co., Canada East,	
Carp Lake, M.,	20,000		T. 51, N. R. 43, W. S½ of N¼ of N. Sec. 14, and E¼ Sec. 23, and NE¼ Sec. 23, 440 A.	W. H. Abel, 70 Wall St., N. Y.
Cascade, M.	20,000		SW¼ Sec. 9, T. 49, N. R. 39, W, in Ontonagon co., Mich.,	G. F. Riley, 35 Wall St., N. Y.
Copper Creek,	1,000	$100,000	Missouri,	H. M. Thompson, Missouri, Mo.
Copper Falls,	20,000		Sec. 14, T. 58, N. R. 31, W, Keewenah Point,	97 State, Boston.
Copper Harbor,	20,000		S½ Sec. 10, T. 58, R. 28, 320 A. Keewenah co.,	Fred. Beck, 43 City Ex., Boston.
Copper Creek,	20,000	500,000	Douglas co., Wisconsin,	T. B. Lawson, 71 Broadway, N. Y.
Central,	20,000	500,000	E½ Sec. 23, T. 58, N. R. 31, W,	J. Stanton, Jr., 25 Nassau, N. Y.
Cornwall,			Strafford, Orange co., Vt.,	D. H. Whitney, 17 State St., B'n
Continental,	200,000	500,000	Martinsburg, New York,	J. Sickles, 50 Ex. Pl. N. Y.
Corinth,	20,000	500,000	Corinth, Orange co., Vermont,	W. A. Cleveland, 191 B way, N.Y.
Copper Hill,			Wisconsin,	Boston.
Dacotah,	20,000		Sec. 35, T. 55, R. 34, Portage Lake,	J. M. Cooper, Milk St., Boston.
Delaware,	20,000	500,000		S. M. May, 326 Walnut St., B'st'n.
Derby,			Ontonagon co., Mich.,	P. C. Blancan, 35 Wall St., N. Y.
Dorchester,	20,000		800 A.,	31 and 32 City Ex., Boston.
Douglas,	20,000		E½ Sec. 30, T. 55, R. 3,	S. J. Edwards, William St., N. Y.
Dudley,				H Bigelow 45, City Ex., Boston.
Eagle River,	20,000		T. 58, R. 31, Secs. 28, 29, 33, 34,	A. Lamson, 70 State St., Boston.
Ely,	100,000	500,000	325 A., Richmond, Canada East,	Ernest Sacchi, 82 B'way, N. Y.
Empire,	20,000		1798 A., Secs. 1, 2, 11, 12, T. 58, N. R. 28, W. K'w'n co., Min.,	J. S. McMullin, 423 Walnut, Phil.
Eureka,	20,000		W½ Sec. 2, T. 49, N. R. 41, W. Ontonagon co.,	H. Shirley, 157 B'way, N. Y.
Evergreen Bluff,	20,000		NE¼ Sec. 6, T. 50, R. 38,	F. W. Capen, 44 Ex. Pl., N. Y.
Flint Steel R.,	20,000		Sec. 11, 12, T. 50, N. R. 39, W.	F. K. McCully, 157 B'way, N.Y.
Forest City,	20,000		320 A. NE¼ Sec. 36, and SE¼ J. Sec. 25, T. 51, R. 43,	F. Paul, 19 Phœnix Building, Boston.
Franklin,	20,000		¼ Sec. 24, T. 55, N. R. 31 W.,	C. Emery, 26 Kilby St., Boston.
Franconia,	60,000	300,000	New Hampshire,	J. Hanna, 162 Fulton St., N. Y.
French Creek,	100,000		Chester co., Pennsylvania,	R. Roberts, 19 Nassau St., N. Y.
Garden City,	20,000		SW¼ Sec. 60, N. W. Sec. 29, T. 58, N. R. 31 W,	R. H. Howe, Chicago.
Girard,	20,000		600 A. Sec. 15, T. 58, N. R. 28, W. Keweenaw co., Mich.,	B. A. Hoopes, 324 Walnut, Phil.
Gr'd Portage,	20,000		SW¼ Sec. 36, R. 34, W.	A. S. Kellogg, 22 Pine St., N. Y.
Great Western,	20,000		SE¼ Sec. 30, & SW¼ Sec. 29, T. 21, R. 320 A., Ontonagon	J. M. Cooper, 24 City Ex., B'st'n.
Hamilton,	20,000		SE¼ Sec. 35, S½ Sec. 36, T. 50, R. 41, SW¼ Sec. 21, R. 29, 14¼ A.,	J. B. Townsend, 44 Exchange, N. Y.
Hancock,	20,000		SW¼ Sec. 26, Tract of Sec. 25, T. 5, R. 34, W.,	Fred. Beck, 43 City Ex., Boston.
Hanover,	20,000			do. do. do. do.
Harlford,	20,000	500,000	320 A. E½ & SE¼ Sec. 32, SW¼ & W½ Sec. 33, T. 50, R. 40, W,	T. M. Tyng, 61 Cedar St., Boston.
Henwood,			Michigan,	57 Broadway, N. Y.
Hope,	20,000	50,000	240 acres in T 57, R 32, Kw co.	19 Nassau St., New York.
Humboldt,	20,000		Sec. 21, T. 58, R, 31, W,	Hor. Bigelow, 43 City Ex., B'st'n.
Hudson,	20,000		Ontonagon co.,	P. C. Blancan, 35 Wall St., N. Y.
Huron,	20,000		Sec. 2, T. 54, R. 34, W,	Hor. Bigelow, 43 City Ex., B'st'n.
Isle Royale,	20,000		NW¼ Sec. 1, T. 54, R. 34, W,	F. W. Chapen, 33 Ex. Pl., Boston.
Keweenaw,	20,000	500,000	Michigan,	F. W. Chapen, 44 Ex. Pl., Boston.
Knowlton,	20,000		SE¼ Sec. 1, W½ of SW½ Sec. 1, and other lands,	44 Ex. Pl., N. Y.
Lafayette,	20,000		Secs. 25, 30, 36, T. T. 51, N. R. 43, and 44, W., Ontonagon,	P. C. Blancan, 35 Wall St., N. Y.
Lyster,	200,000	$400,000	Township Nelson, Canada East,	H. W. Nelson, 24 City Ex., B'st'n
Lower California	40,000	2,000,000	N. part of Lower California,	55 William St., N. Y.
Madison,	20,000		Part sec. 18, 19 entire, 30, 31	Fred. Beck, 43 City Ex., B'st'n.
Merryweather,	20,000		Secs. 9, 19, T. 48, N. R. 4, W,	J. T. Waters, New York.
Mandan,	20,000		680 A. Secs. 8, 17, 19, 30, T. 58, N. R. 29, W., Keweenaw co., Min.,	B. A. Hoopes, 324 Walnut, Phil.
Manhattan,	20,000		W½ Sec. 11, NW¼ Sec. 14, T. 58, N. R. 32, W, 360 A.	J. W. Davies, 21 Nassau St., N Y.
Mendotta,	100,000	500,000		M. Taylor, 30 Wall St., N. Y.
Mass. M. Co.,	20,000		SW¼ Sec. 7, T. 50, N.R. 38, W,	J. M. Cooper, Pittsburgh.
Mesnard,	20,000		NE¼ Sec. 24, T. 55, R. 34,	L. Burr, 12 Phœnix B'gs, Boston.
Melones & Stan.,			Calaveras co.,	606 Mont St., San Francisco
Minnesota,	20,000		Sec. 15, T. 50, N. R. 39, W,	S. M. Pond, 12 Pine St., N. Y.
Maryland,			Maryland,	Baltimore.
Merrimac,	20,000		NW¼ Sec. 34, T. 51, R. 38, W, Ontonagon,	J. M. Mills, 284 Pearl St., N. Y.
National,	20,000		Sec. 16, T. 50, R. 39, W. 1,988 A	J. M. Cooper, Pittsburgh.
Native,	20,000		Keweenaw Point, Michigan,	
Nashua,	50,000	100,000	320 A. N. Ontonagon,	W. F. Hardy, 27 City Ex., B'st'n.
Nebraska,	20,000		NE¼ Sec. 12, T. 50, and other lands,	S. W. J. Webb, 54 Wall St., N. Y.
Nequakett,	20,000		Sec. 26, T. 51, R. 43,	G. S. Frost, Detroit.
New York,	20,000		240 A. SE¼ Sec. 10, E½ NE½ Sec. 15,	H. W. Nelson, 24 City Ex., B'st'n.
New Burra,			Baltimore,	R. Roberts, 19 Nassau St., N. Y.
New Jersey Con.	100,000	1,000,000	New Jersey,	W. Bowes, 68 Wall St., N. Y.
N. Y. & Passaic,	100,000		Harrison, Bergen c.,	T. H. Belt, Jr. 25 William St., N Y.
New Devon,				T. H. Belt, Jr. do. do.
North Western,	20,000		W½ Secs. 24, 25, 26, E½ Secs. 35, 35, T. 58, N. R. 31,	17 William St., N. Y. J. M. Cooper, Boston and Detroit.
Norwich,	20,000	500,000	Secs. 11, 12, T. 40, N. R. 39, W, and other lands, 1,300 A.,	P. C. Blancan, 35 Wall St., N. Y.
Ogema,	20,000	500,000	NW¼ Sec. 6, T. 50, N.R. 35 W.	G. L. Lellingwell, 7 Pine, N. Y.
Ontonagon,	20,000		631 A. Secs. 20, 21, 28, T. 50, N. R. 39, W. Rockland, Ontonagon,	G. Hart, 11 Pine Street, N. Y.
Ont'n'g'n, Mass.	20,000			William D. Williams, Michigan.
Otisville,	100,000	500,000	Otisville, Orange co., N. Y.,	C. Windsor, 60 Wall St., N. Y.
Penn. Manuf'g.,	20,000	1,000,000	4320 A. Secs. 13, 14, 15, 24, ½ Secs. 10, 11, 12, 23, 25, T. 58, N. R. 30, W.	S. M. Day, 326 Walnut St., Phil.
Pewabic,	20,000		W½ Sec. 25, T. 55, N.R. 34, W.	C. Emery, 30 State, Boston.
Pitts. & Boston,	20,000		Ts. 58, 57, N. R. 31, 32, W 12,495 A.	H. A. Johnston, Pittsburgh.
Pontiac,	20,000		SE¼ Sec. 13, T. 55, N. S. 31, W	C. Emery, Kilby st., Boston.
Portage Lake,	20,000		Houghton co. Michigan,	22 William St., N. Y.
Prescott,	100,000	1,000,000	Central Arizona,	69 Broadway, N. Y.
Providence,	20,000	500,000	240 A. in Keweenah co., NW½ Sec. 10, W½ NW¼ Sec. 10, T. 57, R. 32, W.	J. W. Davis, 21 Nassau St., N. Y.
Phila. & Boston,	20,000		640 A. Sec. 14, T. 58, N. R. 28, W. Keweenaw co., Mich.	J. S. McMullin, 423 Walnut St., Boston.
Quincy,	20,000		Sec. 26, T. 54, N. R. 34, W,	W. H. Smith, 51 Ex. Pl., N. Y.
Republic,	8,000	200,000		H. Baldwin, 70 Wall St., N. Y.
Reliance,	20,000		Secs. 21, 22, 27, T. 58, N. R. 28, W, 10,785 A.	H. K. Thomas, 11 Wall St., N. Y
Rochester,	200,000	500,000		J. A. Ferguson, 8 Wall St., N. Y.
Ridge,	10,000		Sec. 35, T. 51, R. 38, W,	51 Exchange Place, N. Y.
Rockland,	20,000		Sec. 11, T. 50, R. 39,	S. J. W. Barry, 71 B'way, N.Y.
Resolute,	20,000		1120 A. Secs. 7, 18, 19, T 58, N. R. 29, W. Keweenaw co., Mich,	F. Beck, 45 City Ex., Boston.
St. Mary,	20,000			E. B. Sutton, 43 Pine, N.Y.
St. Margaret,	200,000	1,000,000	Canada,	P. C. Blancan, 35 Wall St., N. Y.
Sharon,	20,000		Ontonagon co., Mich.,	S. J. Edwards, 22 W'm. st., N. Y
Sheldon & Col.,	20,000		SE¼ Sec. 36, T. 55, R. 34, W.	H. W. Nelson, Boston.
South Site,			SE¼ Sec. 34, T. 55, R. 34, W.	Copper Harbor.
Societe Fran'se,	10,000		T. 58, 59, N. R. 28, 30 W,	Carlos Cobb, 22 William St., N Y
Suffolk,	20,000			S. J. W. Barry, 12 Pine St., N. Y
Superior,	20,000		W½ Sec. 14, T. 50, N R 39, W.	H W Nelson, Boston.
Toltec Consol.,	20,000		Secs. 25, 26, R. 50, R. 36,	A. S. Kellogg, 22 Pine St., N. Y
Union,	20,000	500,000		17 William St., N. Y.
Ural,			Wisconsin,	
Vulcan,	20,000		1120 A. Secs. 7, 17, 18, T. 58, N.R. 27, W. Keweenaw co.,	F. K. Womrath, 324 Walnut, Phila
Victoria,	20,000		Secs. 20, 29, 30, 34, 34, T. 50, R. 39, and other lands,	L. W. Clarke, Boston.
W. Minnesota,	20,000		Secs. 17, 18, 19, T. 50, N. R. 39, W.	C. T. Howard, Boston.
Wickopee,	100,000	500,000	Massachusetts,	G. A. Snelen, 12 Pine St., N. Y
Vermont,	100,000	500,000	W. Fairlee, Orange co., Vt.,	191 B'way, N. Y.
Wauia Yuma,	600,000	6,000,000	Arizona,	35 William St., N. Y.

S, means section; T, township, R, range

AMERICAN
Journal of Mining.
[ILLUSTRATED.]

GEORGE FRANCIS DAWSON,
EDITOR.

By publishing contributions, the JOURNAL OF MINING *does not necessarily endorse the positions assumed by contributors.*

OFFICE, 37 PARK ROW, NEW YORK.

Published Every Saturday Noon.

TERMS:

SUBSCRIPTION.		ADVERTISING.	
Per annum, one copy -	$4 00	One line [Nonp.] 1 insert'n.	$0 30
Six months, one copy -	2 25	One Square, 10 lines, one do	2 00
Three months, one copy -	1 25	One Square, do. four do.	5 00
Single copy - -	10	One Square, do. one year,	40 00

Canadian subscribers 25 cents extra for postage.

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NEW YORK, SATURDAY, JULY 21.

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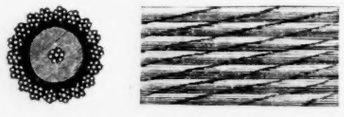
THE SUB-ATLANTIC TELEGRAPH CABLE AND ITS VALUE TO THE MINING INTERESTS.

Unless it be owing to a settled conviction on this side of the water that all Sub-Atlantic Telegraph schemes are predestined failures, we are at a loss to account for the small degree of interest felt by Americans in the expedition now on foot. For ourselves, we have the liveliest faith in the ultimate success of this grand project. Through ten times the number of abortive attempts thus far made, we should still stick to our faith. Farther than that, because we appreciate the vast importance to the mining interests of such a means of communication between the Old World and the New, we await with much anxiety the news of failure or success. Telegrams flashed backward and forward between the two continents must necessarily tend to equalize rates in the great mining and metal markets of the world. The San Francisco stock market is influenced by the working condition of the Comstock mines—as telegraphed hourly to that city from Virginia; the New York market, so far as Nevada stocks are concerned, is influenced by that of San Francisco; and the London market is similarly affected. But in London, at present, there are intervals of days without hearing of change in prices of stocks, and during those days violent fluctuations may have occurred. The telegram is the great equalizer, whether as to mining stocks or metal for any other sales. If telegraph wires connect every great centre of trade in the world, then we believe that prices everywhere (save the differences in tariffs) must be more equal. The Atlantic is the only difficulty in the way of reaching all these centres, and therefore, as the public should be anxious to gain its benefits, they should show some sort of interest in the progress of this fifth endeavor to secure them. The first, in 1857, failed when about 300 miles from the Irish shore. The second in 1858 failed by the loss of 100 miles of cable during a storm. The third (also in 1858) was successful, but owing to the damage sustained during the previous storm, the cable only worked for a short time, and then became unintelligible. The fourth, in 1865, failed either through accident or design. The fate of the fifth now hangs in the balance. The last news of it was in a dispatch from the indomitable Cyrus W. Field to D. H. Craig, dated Valentia, July 7th, which ran thus:

"*The Shore End of the Atlantic Cable was successfully laid on the 7th inst. All well.*"

Allowing one or even two days more for the Great Eastern to come around from Beerhaven, and make the splice with the shore end, she ought to have started on the 9th inst. As she is limited in speed to less than six knots, she ought to make the trip from Valentia to Heart's Content inside of twelve days, so that, if no accident has happened, we should learn some time to-day of its success. That the readers of the JOURNAL OF MINING may be well informed on this subject, we have compiled the following descriptions of the cables of '58, '65, and '66, and present, in connection therewith, accurate illustrations of each, which will be found serviceable:

1858.



CONDUCTOR.—A copper strand of seven wires, six laid around one; weight 107 lbs. per nautical mile.

INSULATOR.—Gutta-percha laid on in three coverings; weight 261 lbs. per nautical mile.

OUTER COAT.—Eighteen strands of charcoal iron wire, each strand made of seven wires, twisted six around one, laid equally around the core, which had previously been padded with a serving of tarred hemp.

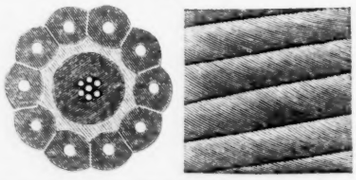
BREAKING STRAIN.—Three tons, five cwt.—capable of bearing its own weight in a trifle less than five miles depth of water.

DEPTH OF WATER.—Not more than 2 7-10 miles.

LENGTH OF CABLE.—2,174 nautical miles.

DISTANCE.—About 1,600 nautical miles.

1865.



CONDUCTOR.—A copper strand of seven wires, six laid around one; weight 300 lbs. per nautical mile; embedded in Chatterton's compound.

INSULATOR.—Gutta-percha and Chatterton's compound; weight 400 lbs. per nautical mile.

OUTER COAT.—Ten solid wires, drawn from Webster and Horsfall's homogeneous iron, each wire surrounded with tarred Manilla rope, and the whole laid spirally around the core, which had previously been padded with a serving of tarred jute yarn.

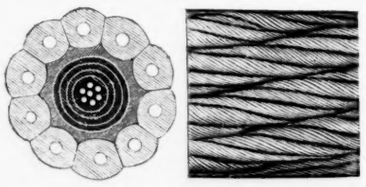
BREAKING STRAIN.—Seven tons, fifteen cwt., capable of bearing its own weight in eleven miles depth of water.

DEPTH OF WATER.—Not more than 2 7-100 miles

LENGTH OF CABLE.—2,300 nautical miles.

DISTANCE.—About 1,600 nautical miles.

1866.



CONDUCTOR.—A copper strand of seven wires, six laid around one; weight 300 lbs. per nautical mile; embedded for solidity in Chatterton's compound.

INSULATOR.—Four layers of gutta percha laid on alternately with thinner layers of Chatterton's compound; weight 400 lbs. per nautical mile.

OUTER COAT.—Ten solid wires drawn from Webster & Horsfall's homogeneous iron and galvanized, each wire surrounded separately with five strands of white Manilla yarn, and the whole laid spirally around the core, which had previously been padded with a serving of tarred hemp.

BREAKING STRAIN.—Eight tons two cwts. Capable of bearing its own weight in 12 miles depth of water.

DEPTH OF WATER.—Not more than two and seven-tenths miles.

LENGTH OF CABLE—2,730 nautical miles, part of which to be used for completing the cable that parted last year.

DISTANCE.—About 16,000 nautical miles.

The present cable is stronger, lighter and more flexible than any of its predecessors, and if the recent violent storm has done no damage to it, we may reasonably anticipate success. In addition to the particulars above given, it may be interesting to mention that during the past winter, and even up to the present time, the half of the cable laid last year has been watched and tested day and night, and that these tests show with great certainty that, up to the point of fracture, it has actually improved since first laid, until it has become electrically perfect.

WANTED—INFORMATION FROM MINERS.

Most people can do something or other better than the majority of their neighbors—it may be only digging a garden or hemming a handkerchief, or it may be the ruling of a nation or directing souls. It is the duty of a good citizen to impart his superior knowledge, and if it cannot be done personally, then by writing a book or a newspaper paragraph. The misfortune is that most of us make mistakes about what we can do; our proficiency may lie in mending boots, and we may think ourselves proficient in governing nations, but generally speaking the mistaken men's books will not be read, and the paragraphs for the newspaper will be consigned to the editor's waste-paper basket. Still, if a man thinks honestly that he can do his fellows good by writing, it is his duty to do so. This is especially the case with miners, workers in metals, and machinists. How many useful inventions have died without finding their way to the public! how many earnest scientific men are anxiously experimenting to find out things which would be fully elucidated by a few minutes conversation with some particular workingman, who has long ago known the thing, in practice, without thinking it worth his while to disclose it! It was only by the persevering hard-headedness and obstinacy of such men as Stephenson, Arkwright, and others, that their inventions ever became known. So far as we are concerned, we shall welcome communications from any one connected with mining—whether workingman or man of science—when we can be assured that they write what they know from practical experience. From our Western Territories abundant information is received through correspondents and exchanges, but from mines in the Eastern and Middle States, although so near us, there is actually less known here than if the mines were beyond the Rocky Mountains. We shall be glad if those interested therein would keep us better posted.

Sad State of the Scotch Iron Trade.

The London *Mining Journal* states that of 138 iron furnaces in the Glasgow district, 49 have been

extinguished, leaving only 89 in blast. These 49 idle furnaces would consume 40,000 tons of iron stone and lime, and 80,000 tons coal, in producing 34,000 tons pig iron. The loss in wages induced thereby is £25,000 or $150,000 per month, a loss falling upon the poor miners and their families—while the masters lose the profit on £90,000 worth of iron per month. All this suffering and loss is occasioned through simple misunderstandings between the men and their masters, the former terming the latter "the natural enemies of the miners." In cases of mutual disagreement, the best remedy is separation. There is plenty of room here for all miners dissatisfied with wages and ill-treatment in the older countries.

SALT AT THE EUROPEAN SEAT OF WAR.

The New York *Mercantile Journal*, in the course of an otherwise excellent article on salines, says:

"Salt is manufactured from the sea-brine on the Northern coast of Germany, and Prussia enjoys a very lucrative monopoly. * * * * * The neighboring interior States receive most of their supplies from her, and this fact is one cause of prospective embarrassment in view of the war already begun."

This statement is not correct. The Prussians do not manufacture any salt from sea-brine. Much of the salt used in Prussia and the States adjacent is manufactured from brine-springs, and the balance is imported from England at a cost of about 15 cents per bushel, delivered at Prussian ports. At this price it could not be manufactured from sea-water in Prussia, owing to the comparatively small power of the sun there, and the expense of obtaining artificial heat; nor could it be made from the springs, were they not much stronger in brine than the sea. The Prussian government reserves to itself a monopoly in the trade of salt to the exclusion of Prussian merchants.

Gold is King.

General Sherman, in his speech last Thursday at the Dartmouth College Commencement, while reviewing his own life, and to a certain extent that of the Nation, said:

The Mexican war soon broke out, and I was sent to California, where in my wanderings I saw the first pieces of gold discovered, and watched its magical effect upon the whole world. The discovery of that gold gave millions to America, and I doubt much whether, if that gold had not been discovered, the nation would have managed to work out the problem of finance which the war of Rebellion had raised, and preserved its present glorious position. That gold gave us wealth and credit abroad, and a strength and durability which survived the war.

We have long held that but for the mines and miners of this country, the Union could not have been preserved; and we are glad to find that one of the foremost heroes of the late war for the suppression of rebellion, adds his commanding testimony to the same effect. In legislating for mines and miners, we think that Congress shoud give heed to this fact.

Bullion Remittances.

A telegram from San Francisco, June 19th, states that receipts of bullion in that city from all quarters, since the 1st inst., amount to $2,000,000; and a dispatch of the same date from St. Louis informs us that $250,000 in gold dust had arrived there from St. Joseph in the hands of passengers from Montana. Putting "this and that" together, the "indications" for a plentiful harvest of the precious metals this year are exceedingly good.

An Overflow of Coal Miners.

It appears that Nova Scotia is in the position of a housekeeper who has invited more guests than her means can accommodate. She has had a sudden influx of coal miners, has nothing for them to do, and has consequently stopped the government allowance. Let them come to the States, and they will find rather more room than in Nova Scotia, and though there is no government subsistence-money, there will be found good private wages, which is better.

Scientific Meetings.

A Cool Effort for Such Hot Weather.

The meetings of all the societies are now adjourned until September. At the last meeting of the Society for the Advancement of Science and the Arts, a gentleman from England, according to announcement, attempted to overturn the theories of Newton and other philosophers on gravitation, but either the heat of the weather or English diffidence affected him so much that we were unable to make out two consecutive sentences. We understood him to say, however, among other things, that by means of syphon-shaped tubes we might soon expect to convey ourselves up mountains more easily than we can descend them! After a dissertation of two hours, he asked to be allowed to complete his statements on a future occasion, a desire which was received very patiently and courteously, but is not likely, we think, to be realized at a very early date.

Correspondence.

[To insure insertion of Correspondence in our columns the full name and address of the writer must be given.]

ABOUT PROCESSES.

EDITOR JOURNAL OF MINING:

SIR:—I notice the statements in the JOURNAL of 30th ult. respecting the different processes of extracting metals, which, considering the authenticity of their sources, is very interesting and valuable. But can you, or any of your readers, inform me what quantity of metal is contained in the tailings after passing through Lyon's and Keith's processes? or may I gather from the statements that Lyons' process of smelting, which seems to give a certain large average ($150 to the ton of pyrites), exhausts the metal, while Keith's process, which appears to be so much more favorable in regard to cost of construction of works, and identical in regard to working, leaves a large amount of metal in the tailings, as it gives sometimes only $40 per ton and sometimes $150 per ton? Does this variation between $40 and $150 arise from the greater or less quantity of sulphur, etc., contained in different samples of ore or from different intrinsic quantities of metal in the ore? And what proportion does the metal in the tailings thrown away by these processes bear to that lost by the ordinary methods, which in the case of Comstock ores is estimated at more than one-third of the value of the ore raised? It appears to me that since these tailings have been mined, crushed, desulphurized, smelted or amalgamated at a cost identical with the ore from which the metal has been actually extracted, that we must look for dividends rather to improvements, which will make these tailings available, than to any other source. A CONSTANT READER.

"Constant Reader" asks some questions that can best be answered by Mr. Lyon and Mr. Keith; some that neither of those gentlemen can answer, because their processes, so far as we know, have never been pitted against one another on precisely the same ore; and some that are absurd. For his information we will say that the ores of the Comstock vein are simply argentiferous, while Colorado veins are either auriferous and copperiferous, or are of argentiferous galena. There is no comparison between either the ores of Nevada and California or the methods by which the metals are taken from them. If but one-third is taken out of the ores of Nevada, hardly one-twelfth would be taken out of those of Colorado were the same processes used. The fact is, that Colorado was obliged to begin where Nevada left off, because the ores of the former are incomparably more fractious than those of the latter. As to the matter of "tailings," the Lyon smelting process has none, unless the "slag" be classed as such—and, by-the-bye, we have in our possession a piece of this same "slag," which "Constant Reader" may have if he wishes to get it assayed. As to looking for dividends to improvements in treating tailings, we are forcibly of the opinion that the process that will successfully treat tailings, must successfully treat everything that comes from the stamps.

COAL.—No. Three.

EDITOR JOURNAL OF MINING.

SIR—It need not surprise us that the whole community feels a deep interest in the discovery of beds of coal, for there is no mineral more useful to man than this. Geology is able to show us, with considerable accuracy, where we may expect to find it, since the stratified rocks occur in a regular order, except when certain strata are altogether wanting, and the coal strata are never found below the Devonian system nor above the cretaceous. Having then determined the formation of the locality in which we suppose coal may be found, the next step is to select the exact spot for mining. In this the experienced miner is guided, to some extent, by the following indication: FIRST—Coal beds are often rendered visible by the demanding agency of streams, which wash away the allevial deposit from the surface, exposing the solid face of the bed to public view, as an outcrop, or forming it into a smooth floor. Sometimes small pieces of the coal are torn from the bed and carried far down below, thus enabling the explorer to trace his way to the bed above: SECOND—Coal beds are often exposed to view by the upturned roots of fallen trees. It often happens that pieces of coal, black-slate, and blossom are to be found in this manner, leading to the discovery of a bed beneath: THIRD—Coal beds are often discovered by the "blossom" which is the soil of coal. This is a sure indication of a bed beneath: FOURTH—Coal beds are generally found on terraces surrounding the mountain on which they are found—whether the beds therein are in a horizontal or perpendicular position: FIFTH—Coal beds are often determined by springs which issue in a line along the outcrop of the bed. These springs often contain iron, copperas and other ingredients. Though the above are good indications, yet they may fail; and in flat localities, covered thickly with alluvial deposit, no such indication can be discerned. Therefore, the only means of ascertaining the existence of coal mines in such localities is by actual boring. A MINER.

SHAWMUT, Elk Co., Penn.

Original Papers.

[WRITTEN FOR THE JOURNAL OF MINING.]

MINERAL RESOURCES OF GEORGIA.

By Professor Paul C. Morton, of Oglethorpe University.

The mineral wealth of Georgia has only been suspected until recently, and is even now but little realized, although the establishment of a United States Mint for coining the gold, and extensive discoveries in the neighborhood of Dahlonega, had occasioned considerable excitement many years ago. The mining of the Ducktown copper ores, and of others less known, was so much stimulated by the demands of the Southern army in the late war, that extensive discoveries have been made, and since the war much Northern capital is seeking investment in that direction. Georgia produces gold, copper, silver, iron, lead, zinc, manganese and bituminous coal—most of these in abundance—besides vast quarries of granite, equal to any I have seen in New England. The pioneer of mining in Georgia has had great discouragements to contend against. The planters found agriculture in that cotton-growing section so certainly profitable that they were reluctant to devote their labor to mining themselves; while, being slave owners, they were often jealous of the introduction of white miners from the North who might tamper with their slaves, and they often refused to sell out to capitalists on that account. This difficulty, of course, no longer exists; and the people, impoverished by the losses of the war, have sold out and leased on liberal terms; and now the ring of the miners' pick and shovel break in on the late stillness of the forest. One of the principal gold regions around Dahlonega is well known, and new discoveries are continually made over a wide area of country. Most of the rivers of northern and western Georgia sweep down their "golden sands," and in the Chatahooche, at a low stage of the water, a number of unskilled hands, with only pans to wash the sand, have been averaging from $1 50 to $5 a day. At another point, in Union county, a lately tired hunter sat down upon a rock to rest, and seeing a curious knob-like projection jutting out several inches, he listlessly took up a stone and broke it off, disclosing in the fracture a layer of gold, weighing several pennyweights. Further explorations have revealed a valuable deposit of gold, and created great excitement in

a vicinity where none had been previously discovered. This is known as the Gum Log gold mine, and gives a handsome return to the miner. There is a large New York company, formed before the war, which being compelled to suspend for some years, after spending over a million of dollars, has lost very heavily from the damage to their property. They had constructed an aqueduct at immense expense to conduct water for their purposes over a deep valley. This structure, nearly two hundred feet high, was blown down, and they are now hauling heavy iron pipes for that purpose; and the work upon the plan now undertaken will cost, it is thought, half a million more. The veins of auriferous quartz frequently occur near the best copper lodes, generally ranging from 35 to 50 deg. east of north, and having a vertical dip. The quartz is commonly white, rose-tinted, or colored by oxide of iron, metamorphic in appearance, and frequently containing iron and copper pyrites. The copper ores of Georgia, in importance, are destined to rank with those of Floyd and Carroll in Virginia, and are much more easily worked than those of Lake Superior. They are chiefly found in a belt seldom over ten miles in width, running through the counties of Polk, Paulding, Union and Rabun, from Alabama on one side to North Carolina, and in the same south-west trend with the copper district in Alleghany county, North Carolina, and Grayson, Carroll and Floyd counties in Virginia. The general formation in which these occur, is known as the upper metamorphic or azoic series of rocks, consisting of hornblendic, micaceous, chloritic and talcose slates and shales, with frequently occurring beds of quartz rock and gneiss. The general direction of these veins is north-east and south-west, as in Virginia, the strike varying from 35 to 60 deg. east of north, and the dip from 55 to 90. One of the best known open mines in the State is that of the Canton Mining Company, in Cherokee county. Associated with the copper ores mined here, is a large amount of argentiferous galena. The Hightown Mining Company, in the same county, has, before the war, sunk a number of shafts from 30 to 90 feet. The slate is chlorito-talcose, pyritiferous, and in some portions impregnated with grey copper. An adit level ditch drains the shafts and empties itself into a stream below. The sand of this stream has been profitably washed for gold. The vein of copper here is 27 feet thick. . . . . There has been much excitement upon the subject of petroleum. In north-western Georgia it has been discovered in various localities, and a number of wells have been sunk, many of which are yielding a fine supply of oil. Before the war some iron furnaces were established, which turned out a very superior metal in large quantities, to supply the army and navy and various railroads of the South. The iron ore had heretofore been little developed but the numerous bold rivers and mountains afore water-power sufficient to drive the machinery of a continent. Some years ago a number of enterprising capitalists put into operation factories for the manufacture of cotton goods at Macon, Columbus, Augusta, Roswell and other places. Notwithstanding the difficulty of getting skilled operatives to come to a slave State, and many other disadvantages to contend with, the number of spindles was increasing rapidly, and during the late war there was such a demand that some of them cleared over two millions of dollars. There is a great opportunity now for northern manufacturers to establish themselves close to the staple. My attention was lately called to a remarkable water power at Milledgeville, which excited the admiration of Elihu Burritt, some years ago. At the head of navigation on the Oconee river, there is a succession of rapids, which in a short distance gives a fall and water power greater than that of Lowell, Mass., or of Paterson, N. J. There was a mill here during the late British war, which manufactured largely, but, the old gentleman who owned the property, has always refused either to sell it or improve it until he felt able to do it himself, and being now in the possession of his heirs, it must ere long be sold for division, and we may expect to see another Lowell spring up in a few years on the Oconee, which affords steamboat navigation and railroad communication with Savannah, and *via* Macon and Atlanta with the interior. In this connection, (since manufactures and mining are twin sisters,) we are justified in urging upon the cotton manufacturers of the North the importance of building some cotton factories nearer the staple. If a company has to spend $500,000, or a million dollars for water privileges and mill sites in Lawrence, Lowell or Taunton, how much better to buy for ten, fifty or seventy-five thousand, a large farm skirting some Southern river for a mile or two, and affording all the mill sites and land to cultivate sites to sell to future occupants, at a profit of 100 to 1000 per cent. Millions are paid annually by the cotton States for goods when the raw material had been grown in their midst, sent from the interior, shipped from the sea coast to New England and brought back, while the manufacturer there can readily sell all the product of his looms at his door, adding to his profits as manufacturer what would otherwise be paid for transportation both ways, wharfage, brokerage, wastage, drayage, insurance and numerous commissions, a saving of perhaps 50 per cent. The same may be said of the manufacturer of iron, a vast quantity of which is needed (while ore lies neglected in the mountains,) to repair the railroads of the State so used up during the war, and also to construct new ones; some of these are now under way. It is further worthy of notice that the friendly soil, besides cotton, produces all the staples of the Middle States, and the manufacturer or miner is easily able to produce, with little labor, food enough for his subsistence, and consequently the returns of his labor with the pick or the loom are not swallowed up in supplying the necessaries of life.

[WRITTEN FOR THE JOURNAL OF MINING.]

SALT—Number Nine.

By FRANCIS E. ENGELHARDT, Ph. Dr., Professor of Chemistry in St. Francis Xavier's College.

Eastern Tennessee possesses some weak salt springs, of which I do not know how many are worked, nor how much they yield. In 1820, salt to the value of $18,912 was produced. The first attempts to produce salt in Ohio were made in 1798, at the old Scioto salt works, in Jackson county. The springs are on the Muskingum, Hocking, Sciotto and Ohio rivers. The Pomeroy well, on the Ohio, is 1,200 feet deep, yielding a strong brine. Ohio produced, in 1862, 2,050,000 bushels. Indiana has a number of salt wells along the Wabash river, in the coal measures. Southern Illinois has salt wells in the coal measures, of which the springs at Equality, in Gallitin Co., were worked as early as 1720, by the Indians and the French. The production amounted in 1860 to 60,000 bushels. Kentucky has numerous salt springs. The largest salt works are on Goose creek. Its production for 1860 was 200,000 bushels. The Missouri salt springs are in Cooper and Saline Co.'s, on the Missouri, and in St. Genevieve and Jefferson Co.'s, on the Mississippi, but most of them are very weak. In Michigan the most remarkable salt region is in Saginaw Co. The production of salt was commenced in 1859, and how rapid has been the increase in the production of salt since that time may be seen from the following table:

In 1860	20,000	In 1862	1,215,000
In 1861	625,000	In 1863	2,311,780

In 1864 there were fifty-six companies in operation, producing, from June 1 to July 31, 1,250,000 bushels. The strength of the brine in Lea & Leavitt's well, according to Dr. Chas. A. Goessmann, former Professor of Chemistry in the Troy Polytechnic Institute, and at present Chemist to the Onondaga Salt Company, is 21.3261 saline matter, of which 17.5163 are chloride of sodium. Wells with weaker brine are also found in Kent Co., near the Grand Rapids. Nebraska has wells with strong brine in Lancaster Co. The so-called mud volcanoes, especially those found in South America, sometimes contain salt in such large quantities, dissolved and mixed with the mud, that a crust of salt is left wherever the muddy water runs. The quantity of salt contained in the brine of the various salt wells differs very considerably, as is shown by the following table, in which the quantity of salt contained in 100 parts of water, is given:

GERMANY.

	PER CENT.		PER CENT.
Friedrichshall	25.562	Clemenshall	25.9025
Hall	25.718	Sulz	23.4750
Moutiers (Savoy)	1.050	Schonebeck	9.6230
Dureuberg	6.599	Bodenberg	5.1730
Artern	2.829	Manheim	2.5060
Soden	1.475	Kreuznach	1.4150
Salzuhausen	0.943	Rodenberg	0.6330
Schwalheim	0.155		

AMERICA.

Holston (Va.)	23.000	Lee & Leavitts (Saginau Co.,) Ohio	17.5163
Salina (N. Y.)	15.843		
Geddes (N. Y.)	16.103	Syracuse (N. Y.)	16.2550
J. S. Haskin (N. Y.)	15.668	Liverpool (N. Y.)	14.9260

The difference in the quantity of salt contained in one and the same well during the year is not generally very considerable. Nevertheless, in the waters of the five last named wells, belonging to the Onondaga Salt Company, the strength of the brine, between May and November, 1862 varied more than 5½ per cent. The strength of the wells in the United States, as compared with the water of the ocean, is, according to Dr. Beck, as follows:

To manufacture one bushel of salt requires

300@350	galls.	Sea Water.	75	"	Kanawha (Va.)
450	galls.	Boon's Lick (Mo.)	70	"	Montezuma (N. Y.) [old well.]
390	"	Conemough (Penn.)			
280	"	Shawneetown (Ill.)	50@60	gall.	Grand Rapids (Mich.)
213	"	Jackson (Ohio.)	50	galls.	Muskingham (Ohio.)
180	"	Lockharts (Miss.)	50	"	Montezuma (N. Y.) [new well.]
123	"	Shawneetown (Ill.) 2nd Saline.	40@45	galls.	Onondaga (N. Y.) [old well.]
120	"	St. Catharines (C.W.)			
96	"	Zanesville (Ohio,)	30@35	"	Onondaga (N.Y.) [new well.]
80	"	Grand River (Ark.)			
80	"	Illinois River (Ark.)			

The depth of the salt wells varies. Some yield a strong brine from one hundred to two hundred feet, while in some instances it has been necessary to sink to a depth of 2,500 feet. It is even asserted that many of the Chinese wells are more than 3,000 feet in depth. The wells are sunk in the same manner as artesian and petroleum wells. Many wells, besides brine, yield large quantities of carburetted hydrogen gas, which in many instances may be applied with advantage to the evaporation of the brine, as is actually done at some Ohio wells. Petroleum, also, in considerable quantities, often accompanies the brine, as in Pennsylvania and Ohio.

[WRITTEN FOR THE JOURNAL OF MINING.]

LEAD FIELDS OF THE UPPER MISSISSIPPI—No. Six.

HOW LEAD ORE IS MINED.

By J. VANCLEVE PHILLIPS, M.E.

We are compelled this week, from lack of space, to omit No. 6 of this interesting series. It will appear in our next.

MINING COMPANY STATEMENTS.

COMMERCIAL SILVER MINING COMPANY; CAPITAL STOCK $500,000; SHARES $20 EACH, PAR VALUE.

This company owns 14,400 feet on various lodes in the Smoky Valley mining district, thirty miles from Austin, Nevada, which, from the affidavit of Peter Gross, corroborated by the statements of others, appear to be well worth working. We are informed by Mr. Jackson, counsellor of this company, that three gangs of men are working night and day in the tunnel that is being run in from the Birch creek side, and which will cut one of the lodes, the Mammoth, at a depth of eight hundred feet below the surface.

REPORTS.

DELAWARE AND HUDSON CANAL COMPANY; CAPITAL STOCK, $10,000,000.

The annual report of this company shows it to be in excellent condition, the net profits for the past year having reached the handsome sum of $2,357,839.49, or a little over 23½ per cent. of the capital stock, and this in spite of the fact that operations were seriously interrupted by strikes of the railroad men and the miners, work in the latter case having been suspended about seventy days, or fully one-third of the canal navigation season.

DIVIDENDS.

The Washington and Walnut Bend Oil Company, of Philadelphia, and the Columbia, of Pittsburg, have declared dividends of five and four per cent. respectively.

MEETINGS.

The Mineral Point Petroleum, Coal and Iron Company met yesterday to elect trustees.

MARKET REVIEW.

FRIDAY EVENING.

Gold—Is quoted this afternoon at 3:30 140¾. The loan market is easy and inactive at five per cent., with few borrowers and rates consequently in their favor. The discount demands are small, the rates are 5½@8 per cent. Foreign exchange is steady without being active. Bills on London at sixty days, 109⅜@109¼. Government stocks are not much dealt in. Railroad shares irregular and lower. For mining and petroleum stocks we refer to our weekly tabular statement.

Iron.—There is still little No. 1 American in the market. Small sales have been made at $47 50 to $48. In No. 2 American there is still less doing. Scotch Pig, as was to be expected from the disputes and consequent blowing out of furnaces, is held here firmly, though without change in prices. Small sales of Gartsherrie $49 @ 50, of Glengarnock 48 @ 49; a lot of 200 tons at $47. The prices from store, owing to postponement of the tariff bill, are easier, but unchanged in figure. Swedes, ordinary sizes, $170; refined bars, $125 @ $130; common, $115 @ $130.

Steel.—Unchanged and steady.

Copper.—Also is lower owing to postponement of tariff. Sales on Saturday included 30.000 lbs. Detroit at 33c.; 60.000 Portage Lake at 32½c. 50.000 lbs. Baltimore at 32c. Detroit is now quoted at 32½c., Baltimore and Portage Lake 32c.

Lead.—Is without change. Sales of 300 tons Spanish and English at $7 25 @ $7 50, gold. Bar is quoted $11 75; sheet and pipe $11 45.

Spelter.—Dull. Silesian 7½c., gold. 10 tons Lehigh sold at 12¼c., currency.

Zinc.—Quiet. Sales of 400 casks Musselman for forward delivery at 9½, less 4 per cent. discount.

Tin.—Looking up with better demand. Straits 19¾ @ 19½c. Banca 20c. English 20 @ 20¼c., all gold. Plates also in better demand.

Salt.—There is small demand, but also small receipts. The prices are firm. Liverpool, ground, per sack, $1 60 @ $1 80; Liverpool, fine, Jeffrey & Darcey's, $2 75 @ $2 85. Turks Island, per bushel, 55c. @ 57c.

Petroleum.—There is rather more firmness in the market but not much activity. Crude, 21½c.@22½c.; refined, 36c.@38c. in bond; free oil at 53c.@55c.; prime light straw to white, bonded, 37½c.; standard white, 38c.@39c.

THE COAL TRADE.

The stock of domestic is large and the demand limited. The price from yard is $6 to $9 per ton. Seventy thousand tons Pittston coal were sold at auction on Wednesday. There was a large attendance of buyers. We note the prices, as well as those of last sale:

July 18.			June 27.		
TONS.			TONS.		
30.000 Lump	$6 50	—	3.500 Lump	$6 25	@$6 40
15.000 Steamboat	6 25	6 50	3.500 Steamboat	6 12½	@ —
10,000 Grate	6 75	—	3.500 Grate	6 75	@ 7 00
5.000 Egg	6 75	—	3.500 Egg	6 95	@ 7 00
8.000 Stove	7 00	—	6.000 Stove	7 00	@ 7 25
2,000 Chestnut	5 25	5 50	4.000 Chestnut	5 70	@ 5 85

It will be observed that there is a slight advance over last sale in lump and steamboat, 25 cents on the former and 12½ cents on the latter, and a decline in egg coal of 20 cents. Foreign coal is scarce, with good demand. We note sales of 300 tons Newcastle gas coking at $10, cash. The following is a statement of coal transported on the Delaware and Hudson Canal, for the week ending July 14, 1866:

	WEEK.	SEASON.
Delaware and Hudson Canal Co.	44.286	592.070
Pennsylvania Coal Co.	705	9.880
Total tons	44 991	602 550
For the same period last year:		
Delaware and Hudson Canal Co.	35.564	359.896
Pennsylvania Coal Co.	942	17,952
Total tons	36.306	377,848

The Pottsville *Miner* says: The trade is good, and prices have been maintained both here and at the shipping ports. The shipments are diminishing, however, in consequence of turnouts at some of the collieries in this region, and also among the laborers at the wharves at Mauch Chunk. It was supposed that the trade would be dull in the months of July and August, but so far the demand is better than was anticipated. The trade is stimulated to some extent by the impression that the advance in tolls, which was postponed on the 1st of July, will take place on the 1st of August.

The trade sums up this week as follows, compared with last year:

	1865.		1866.		
	WEEK.	TOTAL.	WEEK.	TOTAL.	INC. DEC.
P. & R. R. R.	58.994	1.313.415	79,097	1.993.517	680.165
Schuyl. Can.	27.972	269.115	33.032	629.565	360.450
L. Val. R. R.	13.771	657.940	40.572	938.522	280.582
Lehigh Can.	22.673	261.305	12,707	379.928	115.533
Scranton Sth.	14.311	443.605	19.807	522.268	78 633
" North.	6.989	122.100	8,279	206.065	82.965
Penn. C. C.					
By R. Road		118.179		132.152	13.973
By Canal		7.873		16.181	8.308
Del & Hudson	24.698	324.532	35.136	548.364	223.832
Wy'mg South				165.301	165.301
" North				12.248	12.248
Shamokin	10.097	171.672	10.371	265.016	93.344
Treverton		11.219		23.589	12.370
Short Mt.		7.501	2.626	32.403	24.902
Franklin	351	12.887	1.853	24.703	11.816
Broadtop		113.954		125.954	11.975
	179.853	3.828.391	243.490	6.015.866	
			179.853	3.828.391	
				63.037	2.187.475

FOREIGN MARKET REVIEW.

VAN DADELSZEN AND NORTH'S WEEKLY METAL REPORT.

Nos. 1 and 2 East India avenue, Leadenhall street, London, E. C., June 29, 1866.

Although we cannot yet report any improvement in the metal trade, there is every reason to hope that the reduction in the rate of discount, which may fairly be anticipated during the next fortnight, will induce operators to come forward and take advantage of the present low quotations of our market.

IRON.—The Staffordshire and Welsh reports are by no means satisfactory. Orders continue scarce, and makers still disposed to make concessions. Scotch pig iron has steadily advanced to 57s. 6d., cash.

COPPER.—Both English and foreign is very dull, and prices in many instances quite nominal.

TIN.—An average amount of business has been done in Straits, mostly at £77 down to £75 cash, according to quality. A few parcels afloat have changed hands from £78 to £80. Banca nominally £80. English tin very dull, and easier to buy. The Dutch market steady at 45½ fl.

TIN PLATES.—The low quotations are attracting attention, and, from present appearances, prices have seen their lowest.

LEAD.—The market remains dull.

SPELTER.—A considerable amount of business continues to be done daily, but the highest prices have not been maintained. The bulk of the business done during the past few days has been from £25 down to £24, for spot and forward delivery. Special brands in outports from £24 5s. to £24 10s.

VON DADELSZEN & NORTH.

OIL TRADE CIRCULAR.

LONDON, June 29, 1866.

There is very little improvement in the market since our last, although the demand has increased. Sellers are holding until the season commences, rather than sell at present quotations.

REFINED PETROLEUM.—1s. 10d. to 2s. 1d. per gallon; in Liverpool fine quality at 2s.

AMERICAN CRUDE.—£16 per ton.

SPIRIT.—Continues more favorable to buyers.

LUBRICATING OIL.—Without alteration.

COAL OIL.—REFINED.—Buyers are anxious to make forward contracts, and are offering from 2s. to 2s. 6d. per gallon, which is in most cases refused.

ONCE RUN.—Will realize from $12 1s. to £12 15s. in London.

CRUDE.—?S.

GREASE.—No improvement.

PARAFFIN WAX.—1s. per lb for fine quality.

PARAFFIN SPALES.—From 2d. to 2½d. per lb.

STRANGE BROTHERS & CO., Mold and London.

NEW YORK METAL MARKET.

(CORRECTED WEEKLY.)

ANTIMONY	Regulus, ₱ lb	$00	14	@$ 00 15
	Crude	..	..	.. ..
BORAX		..	34	.. ..
BRIMSTONE		67	50	72 50
COPPER	Ingot..Lake Superior, ₱ lb., cash.	..	32½	.. ..
	Baltimore	..	32	.. ..
	Pig Chili	..	..	.. ..
	Bolts	..	43	.. ..
	Braziers	..	42	.. 43
	Sheathing	..	45	.. ..
	Yellow metal	..	33	.. ..
IRON—Pig	No. 1 Scotch, ₱ ton	47	00	50 00
	No. 1 American	46	00	48 00
	No. 2 "	45	00	.. ..
	No. 2 Charcoal	..	..	.. ..
Bar	Swedish, ordinary sizes	170	00	.. ..
	Amer. and Eng. refined	125	00	145 00
	" " common	115	00	120 00
Rails, American currency		..	..	.. ..
" English gold		..	..	.. ..
Horse shoe iron		170	00	180 00
Rods 5-8@3-16rd. and sq.		130	50	185 00
Hand		165	00	.. ..
Nail rods, 5-8 and 3-16		122	50	185 00
Hoops		160	00	225 00
Sheets, Russian, ₱ lb		..	28	.. 30
" English "		..	6¼	.. 9
" American "		..	25	.. 25½
Boiler Plates, English		..	..	.. ..
" American		..	..	.. ..
STEEL	Best cast in bars, war	..	26	.. ..
	Best sheet cast, "	..	26	.. ..
	Best cast circular saw plates 46 in.	..	32	.. ..
	Double shear steel, war	..	26	.. ..
	Single " " "	..	23	.. ..
	Montague & Co. C. S., in bars	..	23	.. ..
	Round machinery cast	..	17	.. ..
	Best German	..	17	.. ..
	Government German	..	14	.. ..
	Eagle German	..	16	.. ..
	(L.) Blister, war	..	22	.. ..
	W. Jessop & Sons, blister, war	..	20	.. ..
	Double refined	..	28	.. ..
	Stone Axe shapes	..	28	.. ..
	Common blister	..	16	.. ..
	2d quality sheet	..	23	.. ..
	3d quality sheet	..	20	.. ..
LEAD	American, per 100 lbs	..	..	.. ..
	German ..... Gold	7	25	7 50
	Spanish "	7	25	7 50
	English "	7	25	7 50
	Bar, per 100 lbs	11	50	.. ..
	Pipe and sheet	11	14	.. ..
TIN	Banca Gov., per 100 lbs. gold		20	.. ..
	Straits		19⅞	19½
	English	20		20¼
TIN PLATES	IC 10-14 prime charcoal	15	50	.. ..
	IX 10-14 " "	18	50	.. ..
	IC 12-12 " "	16	00	.. ..
	IX 12-12 " "	19	00	.. ..
	IC 14-20 " "	16	50	.. ..
	IX 14-20 " "	19	50	.. ..
	IC 14-20 Roofing ch. 1st	14	75	.. ..
	IC 14-20 " " 2d	13	75	.. ..
	IC 14-20 " Coke	12	25	.. ..
	IC 10-14 Coke	12	00	14 50
SPELTER	Lehigh, per lb., currency	..	12¾	.. ..
	Foreign " gold	..	7¼	.. ..
ZINC	Musselman & Amer. gold	..	9½	.. ..
SOLDER	No. 1	..	24	.. ..
	No. 2	..	22	.. ..
QUICKSILVER		..	80	.. ..

LONDON METAL MARKET.

LONDON, June 29, 1866.

		£.	s.	d.	£.	s.	d.
COPPER	Best selected, per ton	89	0	0	@ ..	..	..
	Tough Cake & Tile, per ton	86	0	0	..	..	..
	Burra Burra " "	90	0	0	..	..	..
	Copper wire, per lb	0	0	11½	..	..	..
	" tubes, " "	0	0	12¼	..	..	..
	Sheathing & Bolts, per ton	91	0	0	..	..	..
	Bottoms, " "	96	0	0	..	..	..
	Old (Exchange)	77	0	0	..	..	..
IRON	Bars Welsh in London	7	2	6	8	5	0
	Do. to arrive	7	0	0	7	6	0
	Nail rods	8	5	6	9	5	0
	Do. Stafford in London	8	10	6	8	17	6
	Bars " "	8	10	6	10	0	0
	Hoops " "	9	10	6	10	10	0
	Sheets, single	10	0	0	11	0	0
	Pig No. 1 in Wales	4	5	0	4	10	0
	Refined Metal, do	4	0	0	5	0	0
	Bars Common do	6	5	0	6	10	0
	Do. Merch. Tyne or Tees	7	10	0	..	..	..
	Do. Railway in Wales	6	0	0	6	5	0
	Do. Swede in London	10	10	0	11	0	0
	To arrive	11	0	0	..	..	..
	Pig No. 1 in Clyde	2	18	0	3	3	0
	Do. f. o. b. Tyne or Tees	2	9	6	..	..	..
	Do. Nos. 3, 4, f. o. b. Do.	2	6	6	2	7	6
	Indian Charcoal Pigs, in Lond.	7	0	0	7	10	0
	Railway Chairs	5	10	0	5	15	0
	Do. Spikes	11	0	0	12	0	0
LEAD	English Pig Common	20	0	0	20	5	0
	Do. ordinary soft	21	0	0	21	5	0
	Do. (W. B.)	22	10	0	..	..	..
	Do. Sheet	24	10	0	21	15	0
	Do. Red Lead	23	10	0	24	0	0
	Do. White	27	0	0	30	0	0
	Do. Patent Shot	20	0	0	..	..	..
	Spanish	20	5	0	20	10	0
STEEL	Swedish in kegs, rolled, p ton	13	0	0	14	0	0
	Do. hammered	15	0	0	16	0	0
	Do. in faggots	16	0	0	16	10	0
	English Spring	19	0	0	23	0	0
QUICKSILVER	Per bottle	7	0	0	..	..	..
SPELTER	Foreign, per ton	24	0	0	..	..	..
	To arrive " "	23	15	0	..	..	..
ZINC	In Sheets	30	0	0	..	..	..
TIN	English Blocks	85	0	0	..	..	..
	Do. bars in barrels	86	0	0	..	..	..
	Do. refined	88	0	0	..	..	..
	Banca	79	0	0	..	..	..
	Straits	76	0	0	..	..	..
TIN PLATES*	IC Charcoal, 1st qu., per box	1	10	0	..	..	..
	IX Do., 1st quality "	1	16	0	..	..	..
	IC Do., 2d quality "	1	8	0	..	..	..
	IX Do., 2d quality "	1	14	0	..	..	..
	IC Coke	1	4	0	..	..	..
	IX Do.	1	10	0	..	..	..
	Canada Plates, per ton	13	10	0	..	..	..
	In London; 20s. less at the works.						
YELLOW METAL	Sheathing, p lb	0	0	8½	..	..	..
	Sheets, per lb	0	0	8½	..	..	..
INDIAN CHARCOAL	Pigs, } in London. }	7	0	0	7	10	0

* At the works, 18s. @ 18s. 6d. less.

SALES OF ORES IN ENGLAND.

LEAD ORES

DATE.	MINES.	TONS.	AMOUNT.	PURCHASERS.
June 18	Bylife	44	£12 0 6	Walker, Parker & Co.
SOLD AT LIVERPOOL, from the LINARES MINES.				
May 23	Lot 1 (ex *Maid*)	57	13 3 6	Panther Co.
	Lot 2 (ex *Thomas*)	31	13 15 0	ditto.
June 21	Lot 1 (ex *Orkney*)	63	13 0 0	Panther Co.
	Lot 2 ditto	63	12 10 6	Walker, Parker & Co.
	Lot 3 ditto	64	12 10 6	ditto.

BLACK TIN.

DATE.	MINES.	TONS.	C.	Q.	LBS.	P. PER T.	AMOUNT.		
June 14	Great Wh. Vor	70	9	0	2	—	£3,365	2	2
16	Penhalls	6	13	1	1	—	392	6	7

COPPER ORES.

SOLD AT THE ROYAL HOTEL, TRURO, JUNE 21.

TOTAL PRODUCE.

MINES.	TONS.	PRICE.	MINES.	TONS.	PRICE.
Dev., Con's.	1.790	£7.448 4 0	Wheal Crelake	80	£273 0 0
Mk'o Valley	427	1.539 7 6	Wt. Maria & For.	50	97 14 0
E. Carn'n	330	1.116 11 0	No. W. Robert	35	101 10 0
Brookwood	280	1.003 0 6	Wheal Edward	29	73 4 6
W. Fr'nd'p	158	945 13 0	Sortridge Con's.	28	100 5 0
Rd United	125	524 2 6	Hawkmoor	24	73 16 0
G'Vke. (Clit.)	106	380 14 0			

Average standard, £108 4 0; average produce, 6¼; average price per ton, £3 19 0; quantity of ore, 3,460 tons; quantity of fine copper, 214 tons 9 cwts.; amount of money, £13,687 2 0.

Previous sale.—Average standard, £105 6 0; average produce, 6½. Standard of corresponding sale last month, £104; produce, 6⅝.

BY WHOM PURCHASED:

NAMES.	TONS.	AMOUNT.
Vivian & Sons	589½	£2.294 8 0
Freeman & Co	230½	1.010 18 0
Greenfell & Sons	396	1.891 2 6
Sims, Willyams & Co	534½	1.997 9 6
Williams, Foster & Co	652½	2,670 3 6
Mason & Elkington	181½	649 18 0
Bankart & Sons	272	1.025 16 0
Copper Miners' Company	256	1.027 9 0
Charles Lambert	25	101 10 0
Newton, Keates & Co	129	561 3 0
Penclawdd Copper Co	18	67 1 0
Hadland & Co	204½	780 3 6
Total	3,460	£13,687 2 0

SAN FRANCISCO STOCK MARKET.

LATEST BY MAIL.

NAME.	FRIDAY, June 15.		Sales for week Ending June 15.	
	Open'g	*Clos'g*	*Shares.*	*Amount.*
Sierra Nevada	.....	.....	354	$ 1.481 00
Imperial	$117½	$111	384	44.236 00
Gould & Curry	.....	.....	8	6.085 00
Chollar—Potosi	197	202	456	69.795 00
Yellow Jacket	675	695	95	70.327 00
Bullion	60	60	169	27.992 00
Crown Point	.....	.....	.....	.....
Belcher	190	192	51	8.877 00
Overman	28	28	272	7.082 00
Ophir	340	352	199	62.974 00
Hale & Norcross	960	960	57	53.178 00
Exchequer	.....	.....	.....	.....
Savage	960	1030	30	29.125 00
Empire Mill	.....	.....	10	1.305 00
Alpha	275	275	20	6.387 00
Lady Bryan	2½	2½	460	1.054 00
Daney	.....	.....	10	80 00
Confidence	321½	303¾	420	12.114 00
Baltimore Amer.	.....	.....	.....	.....
Central No. 2	.....	.....	.....	.....
Kentucky Cop. Co	.....	.....	.....	.....
Golden Rule	16	16	50	765 00

LATEST BY TELEGRAPH.

SAN FRANCISCO, July 19.

Name.	Bid per foot.	Name.	Bid per foot.
Gould & Curry	7.22	Crown Point	...
Savage	...	Yellow Jacket	565
Chollar-Potosi	187	Belcher	155
Ophir	280	Alpha	...
Hale and Norcross	...	Imperial per share	...

☞ A Washoe philosopher has ascertained that that region was once the bottom of a vast ocean, haunted by dreadful storms. Nature, after a while, drew off the water, but left the wind.

☞ "Isn't it pleasant to be surrounded by such a crowd of ladies?" said a pretty woman to a popular lecturer. "Yes," said he, "but it would be pleasanter to be surrounded by one.

☞ During the month of May, 574 boats cleared from Cumberland, Md., carrying 68,269 tons of coal—the largest business for any single month in the history of the canal.

NEW YORK STOCK MARKET.

MINING	July 14. BID.	ASKED.	July 16. BID.	ASKED.	July 17. BID.	ASKED.	July 18. BID.	ASKED.	July 19. BID.	ASKED.	July 20. BID.	ASKED.
Ada Elmore												
Altona							2 75					
American Flag	1 00		1 00		1 00		1 00	2 50	1 00		1 00	1 75
Atlantic & Pacific	2 10	2 50		2 50	1 75	2 50		2 50		2 50		2 50
Bates & Baxter Gold					1 50	2 00		2 00		2 00		2 00
Benton Gold	1 60	1 80	1 50	1 80	1 55	1 70	1 50	1 65	1 40	1 45	1 40	1 45
Bobtail Gold		3 00		3 00		3 00		3 00		3 00		3 00
Bullion Consol. Min'g. Co												
Consolidated Gregory	19 15	19 25	18 65	19 25	19 10	19 25	19 25	19 50	18 80	19 10	18 75	19 80
Corydon	2 00	2 10	1 80	2 10	1 75	2 25	1 75	2 25	1 75	2 00	1 75	2 05
Downieville Gold	66	69	67	70	70	72	67	70		70	65	70
Eagle Gold				2 00								
Gold Hill												
Gunnell Gold	1 05	1 10	1 08	1 10	1 05	1 07	1 05	1 10	1 06	1 10	1 07	1 11
Gunnell Central		4 50		5 00		5 00		5 00				
Holman	35	36	33		36	37	32	35	36		36	39
Hope Gold	2 25	3 00		3 00	2 00	3 25	2 00		2 00		2 00	
Keystone Silver	10	15	10	25	12	17	15	20	10	20	10	20
Kipp & Buell Gold	1 55	1 70	1 45	1 90	1 55	1 70	1 45	1 60	1 40	1 55	1 30	1 50
Liberty Gold						12	11	15	15			23
Liebig Gold												
Manhattan Gold												3 00
New York	1 40	1 45	1 35	1 40	1 15	1 30	1 05	1 15	1 10	1 15	1 10	1 15
Oak Hill Gold	1 50	1 75			1 50		1 00	1 50	1 50			
Quartz Hill	4 15	4 20	4 15	4 20	4 10	4 25	4 00	4 50	4 00	4 50	4 00	4 65
Rocky Mountain Gold		3 40		3 50			1 00	3 50				3 75
Silver Eagle												
Smith & Parmelee Gold	9 25	9 40	9 35	9 45	9 25	9 50	9 00	9 25	9 25	9 40	8 50	9 00
Texas Gold					20							
Virginia City										50		50
Waddingham Gold					2 00	7 00						
Union Gold					2 50		2 50	3 00		3 00		2 50
West Fellows Gold												
Caledonia Copper												4 00
Hancock Copper							22 75		22 00			
Canada Copper		1 00		1 00		1 00				1 00		1 00
Evergreen Bluff Copper												
French Creek Copper		1 25								1 00		
Hilton Copper												
Central Copper												
Sheldon & Columbian Cop												
Knowlton Copper												
Mendota Copper				3 25								
Minnesota Copper												
Norwich Copper												
Ogima Copper												
Penbo Lead				20								
Phœnix Lead & Mining Co								3 00				3 00
Redwood Lead						2 75						1 75
Wallkill Lead	60	95			70	*90	60	1 00	60	75	60	
Columbian Coal												
Schuylkill Coal												
Lake Superior												
Copake Iron		1 00		1 00		1 00				1 00		
Foster Iron												
Annular Drill												
Perry & Peop. S. Min. Co.								2 50				
Reckland												
Isle Royal Copper		12 00		12 00		12 00		12 00		11 00	9 00	12 00
British American Coal												
Rutland Marble	14 00	15 00	14 00	18 00					12 00			
OIL STOCKS.												
Benechoff Run	8 50	9 00	8 00	8 25	8 25	8 40	7 50	7 60	7 60	7 70	5 40	5 60
Buchanan Farm	25	30	27	30	27	30	25	30	25	27	24	27
Central	2 25	2 55	2 10	2 40	2 10	2 40	2 00	2 50	2 00	2 50	2 00	2 50
Excelsior	25	45		40		45	25	36	30	35	30	36
First National	4		5		5		5	7	5	7	5	7
Ivanhoe	2 25		2 25		2 25		2 25		2 25		2 25	
N. Y. & Alleghany	4 40			5 00	4 40	5 00	4 50	4 80	4 70	5 00	4 75	
Northern Light				2 00		3 50		2 00				2 00
Oil Creek of N. Y.				50		50		50		35	25	35
Pit Hole Creek	2 20	2 40	2 05	2 25	2 10	2 25	2 20	2 25	2 00	2 15	2 05	2 25
Rynd Farms	22	35	22		20	30	20	30	20	30	20	25
Shade River	37	40		45	30	40	35	40	20	50		40
United States	8 15	8 25	7 75	8 10	8 00	8 20	7 90	8 00	7 85	8 00	7 60	7 70
Palmer Petroleum												
Union												
Empire and Pit Hole												
Venango & Pit Hole												
Allen Wright												
Bergen Oil & Coal												
Benechoff & Pit Hole												
Equitable												
Fee Simple												
Forest Co. Petroleum Co.												
Gt. Western Consolidated												
Guild Farm												
Heydrick Bros.												
Homowack												
Lilly Run												
Oak Shade Petroleum												
Penn. Oil Creek												
President												
Southard												
Sherman & Barnsdale												
Sherman Oil												
FREE LIST.												
Benechoff Run Oil	4 30	4 50			4 00	4 00	3 50	3 75		2 05	1 00	1 20
Brevoort	1 15		1 00	1 50	1 50	2 00	1 90	1 95	1 90		1 95	2 25
Bliven										1 00		
Brooklyn				75		55		60				50
Bradley						5	4	10		10		10
Bemis Heights						3 00						
Cherry Run Petroleum Co											5	20
Cherry Run Special		35		40		35		35		35		35
Clinton Oil	1 10		1 00	1 90	1 50		1 10	2 00		2 00	1 10	1 75
Consolidated (New York)		1 50										1 50
Empire City Pet'm Co				30	10	35					10	25
Eclectic Oil	1 00	2 00				2 00						
Enniskillen		2 00										
Germania	6	10	7	10	8	10	8	10	8	10	8	10
Hamilton McClintock				2 50		1 50		1 50		1 25		1 25
Heydrick		25	20	25	20		20	25			20	
High Gate		15		15		10		15		15		15
Liberty						15						
Mt. Vernon				25	10							25
Manhattan	20	22	18	20	15	25		25		25		
National								12				
New York & Newark		10		12						10		12
New York, Phil. & Balt		18		25		10		7	15	6		14
Second National	20	50	10	50	15	40						
Oceanic		10	5	10	5	10		12	8	10	6	10
Pepper Well												
Pit Hole Farms		1 00		75		75		65		60		75
Pet. Consolidation						14			3	10	4	
Union	2 50								2 00		2 25	2 50
United Petroleum Farms	22	26	20	26	20	25	20		21	25	21	25
West Va. Oil & Coal Co.	5											
Webster	21	30	20	27	20		25	30	25	30	25	28

BOSTON STOCK MARKET.

Reported for the Journal of Mining by Lombard & Co., 99 State Street, Boston.

COAL.

Companies.	July 13. BID.	ASKED.	July 14. BID.	ASKED.	July 16. BID.	ASKED.	July 17. BID.	ASKED.	July 18. BID.	ASKED.	July 19. BID.	ASKED.
Belmont	2 75	3 50	2 75	3 50	2 75	3 50	2 75	3 50			2 75	3 50
Collins		80 00		80 00		80 00		80 00				80 00
Cape Breton	2 75	3 75	2 75	3 75	2 75	3 75	2 75	3 75			2 75	3 75
Eagle Hill Mutual	50	1 00	50	1 00	50	1 00	50	1 00			50	1 00
Franklin		3 00		3 00		3 00		3 00				3 00
Gilberton	28 00	30 00	28 00	30 00	28 00	30 00	28 00	31 00			28 00	30 00
Glenville	2 00	2 50	2 00	2 50	2 00	2 50	2 00	2 50			2 00	2 50
Harleigh	45 00	55 00	45 00	55 00	50 00	55 00	50 00	55 00			50 00	60 00
Lackawana	5 00	7 00	5 00	7 00	5 00	7 00	5 00	7 00			5 00	7 00
Lorberry												
Locust Dale	17 00	19 00	17 00	19 00	17 00	19 00	17 00	19 00			17 00	19 00
Mammoth Vein	11 00	12 50	11 00	12 50	11 00	12 50	11 00	12 50			11 00	12 00
Mount Pleasant	28 00	30 00	28 00	30 00	28 00	30 00	28 00	30 00			28 00	30 00
New England	28 00	30 00	28 00	30 00	28 00	30 00	28 00	30 00			28 00	30 00
Short Mountain	22 50	23 00	22 50	22 75	22 25	22 50	22 25	22 50			22 25	22 60
Summit Branch	13 00	14 00	13 00	14 00	13 00	14 00	13 00	14 00			13 00	14 00

MINING.

Albany and Boston												
Bay State.....asst. pd	12 50	13 50		13 00	11 00	13 00	11 50	12 50			11 50	12 00
Boston	50	1 00										
Canada		1 00	50	90		1 00	40	90			40	75
Concord	3 25		3 75	4 00	3 25	4 00	3 25	4 00			3 00	4 00
Copper Falls		41 00		41 00		41 00	38 00	39 00			39 00	40 00
Franklin	41 00	41 25	41 00	41 50	41 00	41 50	40 00	41 00			40 00	41 00
Hancock			22 50	23 00	22 75	23 00		23 00			23 62	24 00
Humboldt	4 36	4 36	4 36	4 50	4 25	4 50	4 12	4 25			4 12	4 25
Huron	38 00	40 00	38 00		38 00		35 00	40 00			35 00	40 00
Isle Royal	8 00		8 00		8 00						8 00	
Mesnard	2 00		2 00		2 00		2 00				2 00	
Minnesota		8 00	6 00	8 00	6 00	9 00	5 00	8 00			6 00	8 00
National								18 00				18 00
Petherick	5 25	5 50	5 56	5 50	5 62	5 75	5 50	5 62			5 00	5 25
Pewabic	33 00	35 00	34 00	35 00	34 00	35 00	33 00				34 00	35 00
Phœnix												
Pitts-burg	47 00	48 00	47 00	48 00	47 75	50 00	47 00				47 00	
Pontiac		1 50	75		87	1 50	1 00				1 00	
Quincy	45 00	46 00	45 00		45 00							
Rockland		6 00	5 00	6 00	4 87	6 00	4 75	6 00			5 00	6 00
South Side		1 75	1 50	2 00	1 50	1 75		1 75			1 25	1 75
Star	1 75	2 00	1 36		1 36						1 62	2 00
Superior		3 50		3 25	2 50	3 25		3 50				3 50
Toltec					1 50			10 00				10 00
Winthrop	1 37	2 00	1 00		1 00			3 00				3 00
Consolidated Gregory Gold	19 50	20 00	19 15	19 30	19 15	19 30	19 25	19 50			18 80	19 00
Quartz Hill Gold	4 30	4 50	4 15	4 25	4 15	4 25	4 15	4 25			4 00	4 25
Smith & Parmelee Gold	9 25	9 50	9 25	9 35	9 25	9 35	9 25	9 35			9 25	9 35

PETROLEUM.

Beebe Farm	5 00	7 50	5 00	7 50	5 00	7 50	4 00				4 00	
Boston and Kentucky		25		25		25						25
Boston Oil Creek Land Co.	15	50	15	50	15	50	15				15	50
Boston Petroleum Oil Co.	50		50		50		50				50	
Botolph Oil Well Co.	75	1 50	75	1 50	75	1 50	1 00	1 50			1 00	1 50
Crescent Petroleum Co.		1 00		1 00		1 00		1 00				1 00
Everett Oil Co.	5	15	5	15	5	15	7	15			7	15
" (Pref. Stock)		1 50		1 50		1 50		1 50				1 50
Farrar	4 00	6 50	4 00	6 50	4 00	6 50	4 00	6 50			4 00	6 00
Fuller Farm	20	25	20	25	20	25	16	25			16	25
Great Basin	3	10	3	10	3	10	3	10			3	10
Indian Spring	25	30	25	35	30	40	50	70			30	50
Mass. and Oil Creek	1 00	1 25	1 25	1 50	1 40	1 50	1 20	1 30			1 00	1 25
New England	8	10	8	10	8	10	8	10			8	13
New York and Boston		30		30		30		30				30
Pepper Petroleum	2 20		2 45		2 50		2 50				2 40	
Pittsburgh and Boston	2	12	2	12	2	12	2	12			2	12
Tremont	2 00	3 50	2 00	3 50	2 00	3 50	2 00	3 50			2 00	3 50
Suffolk and Oil Creek		10		10		10		10				10
Winthrop	2	15	2	15	2	15	2	15			2	15
Independ. of U. S. & C. W.												
New York Companies.												
Benechoff Run	9 50	9 60	8 50	9 00	8 50	9 00	8 25	9 00			7 00	8 00
Bergen Oil and Coal												
Bradley												
Buchanan Farm	27	32	28	30	25	30	25	30			28	30
Central	2 40	2 50	2 25	2 30	2 25	2 30	2 10	2 30			2 00	2 20
Cherry Run Special	25	40	25	35	30	35	30	35			30	35
Consolidated												
Empire City		30		30		30		30				30
Empire and Pit Hole												
Excelsior	30	50	30	50	30	50	30	50			30	50
Northern Light		2 50		2 50		2 50		2 50				2 50
Oceanic												
Oil Creek	35	45	35	45	35	40	30	40			35	40
Palmer Petroleum												
President												
Pit Hole Creek	2 35	2 50	2 20	2 30	2 20	2 30	2 10	2 30			2 00	2 25
Rynd Farm	25	30	23	30	22	35	22	35			22	35
Union												
Webster												
Stewart's Run	25	28	25	28	25	30	25	30			20	25
United States	8 55	8 70	8 20	8 30	8 15	8 30	8 00	8 30			7 85	8 00

PRICES OF ASSAYING IMPLEMENTS.*

[CORRECTED WEEKLY.]

Smelting Furnaces	$35 00@ 40 00
Cupelling "	35 00@ 40 00
Scales	10 00@ 30 00
Assay Balances and Weights	100 00@200 00
Plumbago Crucibles	25@ 1 50
Paris "	15@ 1 25
Porcelain Evaporating Dishes	25@ 5 00
Fire Tongs	75@ 3 50
Hammers	1 00@ 2 50
Funnels	15@ 1 00
Litmus Paper, quire	1 00@ 1 25
Ingot Moulds	1 25@ 3 00
Flasks, Bohemian Glass	15@ 1 00
Sand Baths, Iron	25@ 1 00
Pivers	50@ 2 08
Mortar and Pestle, Iron, Agath, etc	50@ 20 00
Lamps, Gas and Alcohol	75@ 5 00
Blowpipes	50@ 3 00
Hydro-Oxygen Blowpipes	25 00@125 00
Pincers, or Cutting Plyers	75@ 1 50
Glass Tubes, German, etc., per lb	75@ 1 50
Muffler	50@ 1 50
Anvils	1 00@ 2 00
Cupel Moulds	3 50@ 5 00
Cupels, per doz	50@ 3 50
Bone Ash, per lb	25@ 50
Test Lead, "	50@ 75

* These articles can be procured at the stated rates, by sending order, with remittance, to

WESTERN & COMPANY, 37 Park Row.

CHEMICALLY PURE PREPARATIONS USED IN THE VOLUMETRIC ASSAY.*

Acid, Acetic	$0 75 lb
" Arsenious	0 05 oz
" Hydrocholoric	0 50 oz
" Nitric	0 60 lb
" Oxalic	0 20 oz
" Sulphuric	0 75 lb
Ammonia	0 60 lb
Baryta, Carbonate	0 20 oz
" Hydrate	0 40 oz
" Nitrate	0 12 oz
Barium, Chloride	0 12 oz
Copper, Sulphate	0 10 oz
Iodine	0 75 oz
Iron, Sesquichloride, Cryst	0 25 oz
Lead, Nitrate	0 10 oz
Mercury, Peroxide	0 20 oz
" Protonitrate	0 25 oz
" Chloride	0 20 oz
Potassa, Carbonate	0 25 oz
" Bichromate	0 15 oz
" Bichromate, Fused	0 20 oz
" Chromate	0 15 oz
" Hydrate	0 40 oz
" Ferrocyanide	0 25 oz
" Permanganate	0 18 oz
" Sulphate	0 10 oz
Silver, Nitrate	Gold 1 10 oz
Soda, Acetate	0 10 oz
" Carbonate	0 10 oz
" Hydrate	0 20 oz
" Phosphate	0 10 oz
Sodium, Chloride	0 10 oz

UNITED STATES SECURITIES.

Reported for the Journal of Mining by Messrs. MEIGS, VON SEYBOLD & CO., No. 4 Broad st., New York.

Friday Evening.

LOANS. INTEREST PAYABLE IN GOLD.	AUTHORIZING ACTS.	AMOUNT OUTSTANDING.	RATE.	PRIN. PAY.	INTEREST.	WHEN PAYABLE.		OFF. PER CENT.	ASKED PER CENT
Registered Bonds	28 January, 1847	$9.415.250	6	1867	.....	Jan.	July.	128	130
Coupon "								.....	.....
Registered Bonds	31 March, 1848	8.908,342	6	1868	.....	Jan.	July.	123	124
Coupon "								120	124
Registered Bonds	22 June, 1860	7.022,000	5	1871	.....	Jan.	July	103	.....
Coupon "								103	.....
Registered Bonds	14 June, 1858	20,000.000	5	1874	.....	Jan.	July.	98¾	100
Coupon "								99	100
Bonds, March 3, 1863		.....	6	1881	.....			.....	.....
Oregon War Debt		1.016.000	6	1881	.....	Jan.	July.	.....	.....
Registered Bonds	8 Feb. & 17 July & Aug., 1861	282.295.500	6	1881	.....	Jan.	July.	109¼	109⅜
Coupon "								.....	.....
Registered "	25 February, 1862 (5-20's)	514.780,500	6	1882	.....	May	Nov.	105	105
Coupon "								.....	.....
Registered "	(5-20's) new issue	100.000,000	6	1884	.....	May	Nov.	105	105¼
Coupon "								.....	.....
Bonds, March 3, 1865	(5-20s)	80,734,500		1885	.....			.....	.....
Registered "	(10-40's)	171.219,100	5	1904	.....	Mar.	Sept.	.....	.....
Coupon "								.....	.....
Total April 1									

LOANS. INTEREST PAYABLE IN LAWFUL MONEY.	AUTHORIZING ACTS.	RATE.	AMOUNT OUTSTANDING.	PRINCIPAL PAYABLE.	INTEREST.	WHEN PAYABLE.		OFF.	ASKED.
Bonds, Cent'l P. R. R. Co., July 2, 1864		6	$2.362.000 00	1895	.....	Jan.	July	.....	.....
Bonds, Union P. R. R. Co., July 2, 1864		6	2,130.000 00	1895	.....	.....	.....	.....	.....
Temporary Loan		4		10 days' notice	.....	.....	.....	.....	.....
Temporary Loan		5	124,561.486 00	10 days' notice	.....	.....	.....	.....	.....
Temporary Loan		3		10 days' notice	.....	.....	.....	.....	.....
Certificates of Indebtedness, March 1, 1862		6	43.025,000 00	1 yr from date	.....	1 yr. fr. date		.....	.....
1 and 2 Years' Notes, March 3, 1863		5	.....	.....	.....	1 yr. fr. date		.....	.....
3 Years' Compound Interest Notes	March 3, 1863 / June 20, 1864	6	162.012.140 00	3 yrs from date	.....	At maturity		.....	.....
3 Years' Treasury Notes	June 30, 1864 / March 3, 1865	7.3	.....	3 yrs from date	.....	Aug.	Feb.	103⅝	103⅞
3 Years' Treasury Notes, March 3, 1865		7.3	812.221.600 00	3 yrs from date	.....	June	Dec.	103¾	103⅞
3 Years' Treasury Notes, March 3, 1865		7.3	.....	3 yrs from date	.....	July	Jan.	103⅝	103¾
Aggregate of Debt Bearing Lawful Money Interest. April 1				Total Interest					

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men and Others.

The following claims have recently been issued from the United States Patent Office :

56,218.—PUMP.—Roger Hartley, Pittsburg, Pa. :

I claim, in double-acting plug-plunger pumps, the combination of the cylinder, A, having a stuffing-box, B, with the cylinder, N, and the gland, T, constructed and arranged as described and for the purpose specified.

56,228.—WATER ELEVATOR.—Samuel F. Jones, St. Paul, Ind. :

I claim, 1st, operating the valve, S, through the medium of the standard, o, and pendant, g, when constructed and arranged substantially as shown and described for the purpose set forth.

2d, In combination with the foregoing standard, o, and pendant, g, I claim the spouts, x and D, and the screen, T, when constructed and arranged as shown and described for the purpose set forth.

56,234.—OIL WELL TUBE.—Obediah B. Latham, Seneca Falls, N. Y. :

I claim, 1st, the cylinder, C, and band, i, varying from a true circle and arranged in relation to the cylinder, H, and an external packing device, substantially as and for the purpose described.

56,212.—STEAM ENGINE.—James R. Maxwell and Ezra Cope, Cincinnati, Ohio :

We claim, 1st, the piston-head of a steam engine longer than its stroke, in the manner and for the purpose herein described.

2d, The piston-head of a steam engine longer than its stroke, with channels and ports in its sides, in combination with a cylinder having corresponding added length and ports leading to and from the main steam valve, in the manner and for the purpose substantially as described.

3d, The cylindrical piston-valve, C, with closed ends, and steam openings through its sides and bottom whereby to operate within the main piston, substantially as described.

4th, The independent steam pipe and valve, P, P, for admitting steam to the main piston, B, in cylinder, A, in the manner and for the purpose herein described.

56,314.—PUMP PISTON.—David S. Wood, Delavan, Wis. :

I claim the two-part loose packing, D, in combination with the channel, L, J, M, and the piston-head, B, substantially as and for the purpose specified.

56,321.—SHOE FOR STAMPING MACHINERY.—P. W. Gates, assignor to himself and D. R. Fraser, Chicago, Ill. :

I claim as a new article of manufacture, a solid shoe for stamping machinery produced by casting hard and soft metal together while both are in a molten state, the soft metal forming the stem of the shoe, while the hard metal forms the body of the shoe, substantially as described.

56,333.—PUDDLING FURNACE.—George A. Whipple, assignor to himself and Jacob Painter, West Pittsburg, Pa. :

I claim constructing puddling, boiling, and heating furnaces with a chamber or space under the bottom plates or hearth, so constructed and arranged substantially as herein before described, so that steam may be generated or introduced therein, and come in contact with the under side of the bottom plates and interior surface of the boshes or chills so as to withdraw from them a portion of their heat, and thus aid in protecting them from the destructive action of the heat of the furnace.

Special Scientific Brevities.

☞ **Torpedoes can be arranged with four platinum** hair wires to explode the charge. When intense electricity is sent along the wire the charge is not exploded if there is a return wire, but messages can be sent directly through the cartridge, and thus the condition of the torpedo is known. To cause the explosion it is only necessary to send accumulated or low tension electricity (from voltaic file for instance,) along the wire, and the charge is exploded at once from the platinum wires becoming red hot.

☞ **An extraordinary reptile has arrived in England** from Australia, which seems to be more nearly allied to the pre-Adamite Saurians than anything before discovered. It possessed enormous claws and teeth, which enabled it to cause great destruction to the natives, while its almost impenetrable skin shielded it from their rude weapons. The body is perfect, with the exception of one claw torn off in the final contest.

☞ **Geologists hold that no new animals or plants** have come in since the creation of man. But not so of diseases. New ones appear every now and again. The last is called acetonemic, because it is supposed to arise from the formation of acetone arising from the decomposition of organic substances, as grape sugar in the stomach. It has proved fatal in a few hours.

☞ **In order to ascertain the unit of evaporative** power of a fuel, and thus ascertain the value of a machine, Prof. Rankine gives the following rules : For every degree of Fahrenheit that the feed water is below 212 degrees add to the actual evaporation 1-966th (or 0.001035) of itself ; and for every degree that the boiling point is above 212 degrees add 1-3220th (or 0.0031).

☞ **The red color of wine can be proved to be artificial** or true by simply dipping a small piece of bread or sponge into the liquid and placing it in a glass of clear water. If the color is artificial the water will be at once colored, but pure wine will not color it for half an hour or more. The sponge should be well washed beforehand.

☞ **Heat has always been supposed to assist the** union of gases which possessed an affinity for each other. But a Frenchman has found that oxygen has no tendency to unite with hydrogen, carbonic oxide or carbon at a temperature higher than the fusing point of platinum.

☞ **M. Hempel states that with a powerful electrical** machine in full activity, and giving strong sparks, the sparks cease and the machine loses all tension if the red vapor of hyponitric acid is allowed to escape into the space traversed by the spark.

☞ **In many high-pressure engines where the ports** are large and free, the stroke of the valve long, and the valve properly set, there is not only an absence of back pressure but a partial vacuum created by the momentum of the escaping steam.

☞ **A telescope admitting no more light than the** pupil of the eye, reveals nearly twice as many stars as the eye alone.

☞ **It is said that paper socks are now made.**

All Sorts.

☞ The young hatter who saved the life of the Russian emperor is decidedly in luck. The sum of 600,000 francs has been subscribed for him, and a large tract of land has been given to him, to enable him to support his new dignity as a nobleman.

☞ In 1689, the lightning having struck the steeple of a church in France, there was afterwards found impressed on the cloth of the communion altar the text of the consecration prayer contained in a book lying open close by.

☞ Albany was, for many years, the largest lumber market, but for the past few years Chicago has become the centre, over six hundred million feet having been received there the last year.

☞ A worthy Alderman, captain of a volunteer corps, ordering his company to fall back, in order to dress with the line, gave the word, "*Advance* three paces *backwards*—march!"

☞ There are no less than thirty different varieties of plants used as substitutes for green tea, and probably twice that number of substances are substituted for coffee.

☞ The largest lithograph ever taken is one of the present French Emperor, which was recently executed on a stone four feet in width and eight feet in length.

☞ The patizans of Turkish baths assert that they will cure hydrophobia, on the principle that heat will kill any poison that is not sudden in its effects.

☞ The French Government proposes to alloy its silver currency with zinc, in place of copper, which is used for that purpose at present.

☞ The proprietor of a restaurant in London, Canada, advertises for "five or six boys to catch frogs for the season." Frogs are very popular there.

☞ Green, the recently execute dmurderer, has been summoned by spiritualists. He expresses himself contented with his hanging.

☞ The temperature of the air at midnight in Upper India is often over one hundred degrees, in the months of May and June.

☞ In 1853 there was observed, in this country, on the body of a man, the imprint of a tree shattered by lightning.

☞ Miss Martineau, in a letter to her American publishers, says she is too ill to continue literary work.

☞ Public lands are now disposed of in a lively manner at the Ionia land office, in Michigan.

☞ As many as 26,000 vehicles often cross London bridge in a day.

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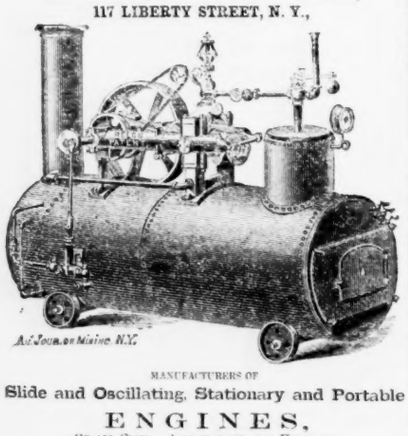

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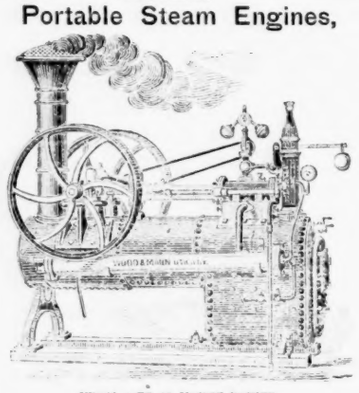

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In connection with our houses in Philadelphia and Washington, we this day open an office at No. 1 Nassau street, corner of Wall, in this City.

Mr. EDWARD DODGE, late of CLARK, DODGE & CO., New York; Mr. H. C. FAHNESTOCK of our Washington house, and Mr. PITT COOKE, of Sandusky, Ohio, will be resident partners.

We shall give particular attention to the purchase and sale of GOVERNMENT SECURITIES, and to orders for purchase and sale of STOCKS, BONDS and GOLD.

JAY COOKE & Co.

New York, March 1, 1866. 1-tf

IMPORTANT TO MINING COMPANIES INtending to erect Machinery in California, Nevada, Idaho, Montana, Arizona, Mexico, or any part of Pacific coast.

The fact being indisputable that many of the failures in mining operations are caused by not having machinery adapted to working the ore, it is of the first importance to start right on this point.

MR. CYRUS PALMER, one of the proprietors of the Miner's Foundry, San Francisco, has lately arrived, and will remain in New York and vicinity for some months, and is prepared to take contracts to furnish all kinds of mining machinery of the most approved style at short notice, delivered in San Francisco, or at any of the mines on the Pacific coast. He will also, if required, contract to build mills at the mines, and put them in complete running order.

Mr. Palmer has just left the Pacific coast, and is therefore, acquainted with the most approved machinery in use for reducing ore and saving the precious metals. Mr. P. has not only been actively engaged for the last ten years in manufacturing mining machinery, but has had large experience in working mines and reducing ores. On application to his address, 25 Nassau street, by letter or otherwise, he will be pleased to give any information required in regard to mining or other machinery, gratis, to any company, whether they wish to contract or not.

Mr. Palmer refers to the following companies for whom the Miners' Foundry have built mills the past year:

Knickerbocker and Nevada, 70 Ceder street; Lincoln Company 80 Broadway; Cosmos Company, 158 Broadway; Connecticut and Nevada Company, 47 Liberty street; Cobden Company, 17 Broad street; New York Company, 80 Broadway; Tarshish Company, 80 Broadway; Washington, 80 Broadway; Mettacom Company, 144 Chambers street; Consolidated Company, 157 Broadway.

Mr. Palmer can be found at the office of R. H. Vance, Esq., 25 Nassau street, corner Cedar, from 11 to 12 o'clock, daily 13.a

PROSPECTUS.

THE NECESSITY FOR A THOROUGHLY RELIABLE medium of information upon MINING MATTERS has been seriously felt by those interested in the mines and mills of the United States. THE AMERICAN JOURNAL OF MINING supplies that want.

It is under the editorial control of GEORGE FRANCIS DAWSON, whose reputation is too well established to require, on our part, any comment.

There is amply sufficient capital invested in the JOURNAL OF MINING to insure its complete success.

THE JOURNAL OF MINING contains—or will contain in future issues:

Seventeen wide, solid columns of condensed, summarized Mining (including Petroleum) intelligence from all parts of the American Continent.

Four to Five Columns of Editorial articles upon topics of interest to the mining community.

Two to Four Columns of original and selected papers on Mineralogy, Geology, Metallurgy, Assaying, Mining and other Scientific Subjects.

Five to Ten Columns of judiciously selected miscellaneous articles relative to mining, the kindred sciences, etc.

Carfully Compiled Directories of Petroleum, Gold, Silver, Copper and other American Mining Companies.

Latest Quotations of Mining and Petroleum Stocks in the New York, Philadelphia, Boston and San Francisco Markets.

Nevada Mining Stocks reported by Trans-continental Telegraph.

Latest Reports of the London and New York Metal Markets; with lists of Copper sales at Swansea and Redruth, England.

A valuable Table, showing the current market values of the various classes of Federal Securities.

A convenient list of the New York current prices of chemicals and implements used in Assaying.

A reliable list of Standard Works on Mineralogy, Geology, Metallurgy, Assaying, Mining, etc.

THE JOURNAL OF MINING also publishes reports of scientific experts relative to noteworthy mines and works; and beautifully illustrated Descriptions of new processes and recent inventions in Mine and Mill machinery. It is printed in the best possible manner, upon a very superior quality of paper, and forms a compendium of trustworthy information that must prove invaluable to mine-owners, practical miners, Mineralogists, Geologists Metallurgists and others.

Each number of the JOURNAL OF MINING comprises sixteen pages of interesting and valuable reading matter; Two volumes per annum, each containing Four hundred and sixteen pages, forming an excellent and almost indispensable work of reference for all interested in Mining, Milling, etc.

☞ Published every Saturday, at 12 o'clock, M.

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Address WESTERN & COMPANY,
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DUCKTOWN

COPPER MINE,

The School property of Ducktown, being the 16th section, 4th fractional township, range 5, East of the basis line, O'Coil district, Polk county, East Tennessee, containing

Six Hundred and Forty Acres,

known as the TENNESSEE COPPER MINE, situated in Ducktown, in the County of Polk, and State of Tennessee,

Will be Let,

by the undersigned School Commissioners, on the FIRST DAY OF SEPTEMBER, 1866, to the

HIGHEST AND BEST BIDDER.

This is undoubtedly one of the best Mines in the famous Ducktown Copper Region, and has been successfully worked. There are on the premises, Smelters with superior water-power, Ore and Coal sheds, &c., in complete working order—besides all the necessary buildings, such as Offices, Stores, Residences, &c., necessary for immediate operation. There are extensive shafts sunk upon the property, and vast beds of rich Copper Ore have been disclosed. This property will be leased for the period of

FOUR YEARS,

with the assurance of four years' longer lease, providing the work shall have been properly executed, on the following

CONDITIONS,

Viz.: 1st. That a bonus of Ten Thousand Dollars be paid into the hands of the Commissioners, for the purpose of establishing Schools in the District—this bonus to be redeemed by a certain per centage of the gross raising of Ores. 2d. That the parties who shall make the best offer—that is, allow the highest per centage of the gross proceeds—and show the best security, shall be considered the successful bidders. 3d. That the mine shall be worked on the strictest mining principles.

All parties interested in mining will do well to examine this property. The purport of this advertisement is real and unexaggerated. Written bids will be received up to the 31st of August, 1866, by the undersigned.

STRICKLAND AUBRIGHT,
E. M. KILPATRICK, JR.,
SAMUEL NORRIS, } Commissioners.

15-x

FIRE-PROOF

IRON TANK

STORAGE COMPANY,

TRANSFER OFFICE, - - - 38 BROAD STREET,

NEW YORK.

CONSOLIDATED LINE.

Great Through Route

TO

THE MINING REGION

AND

THE PACIFIC STATES.

The Holladay Overland Mail

AND

EXPRESS COMPANY.

having consolidated the property of the "OVERLAND STAGE LINE" and the "OVERLAND DISPATCH COMPANY"—comprising all the Overland stage lines running west from the Missouri river—and largely increased and improved their stock and coaches and reduced their rate of fares nearly 25 per cent, will run a

Daily Line of Coaches

to all the principal points in the gold mines of Colorado, Uta Montana, Idaho, Nevada, California and Oregon

They are now running daily coaches from TOPEKA, (in connection with the railroad from St. Louis,) via the "Smoky Hill" route; and from ATCHISON, Kansas, (in connection with the Hannibal and St. Joseph Railroad,) and from NEBRASKA CITY and OMAHA, via DENVER CITY, Colorado, to SALT LAKE CITY, in Utah; thence connecting with their line of coaches for Virginia City and Helena, in Montana; Boise City in Idaho; Walla-Walla, Dallas City and Portland, Oregon.

At Denver City, Colorado, connecting with their double daily line of coaches for Central City, Blackhawk and Empire City.

Passengers for New-Mexico and Arizona also connect at Denver, with a tri-weekly line of coaches for Fort Union, Taos, Santa Fe and other points in those territories.

Passengers for Nevada and California connect at Salt Lake City with daily coaches for Austin, Reese River, Virginia City, Nevada, Humboldt and San Francisco, California.

This Company will also, at an early day, run a line of stages from Salt Lake City through the silver mining district of the Parahuagett Valley to Collville, at the head of navigation on the Colorado River.

RATES OF FARE:

Between Topeka, Atchison, Nebraska City, Omaha, and Denver	$125
Between same points and Salt Lake City	250
Between Denver and Salt Lake City	150
Between Salt Lake City and Boise	125
Between Salt Lake City and Virginia City	125
Through tickets from the Missouri River to Boise and Virginia City	350

TIME:

To Denver City 5 days,
To Salt Lake 9½ days,
To Boise 12½ days,
To Virginia City 13 days,
To San Francisco 16 days.

A treasure and freight express, carried on mail time, in charge of trustworthy and competent messengers, to all of the above named points.

For further information,
Apply at the office of the Company,
No. 35 William street, corner of Exchange place,
New York

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W. S. GURNEE, Vice President.
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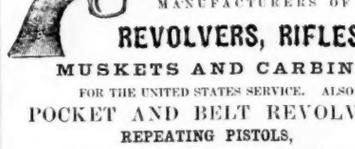
6-ps

E. REMINGTON & SONS,



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REVOLVERS, RIFLES,

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POCKET AND BELT REVOLVERS,

REPEATING PISTOLS,

RIFLE CANES, REVOLVING RIFLES,

Rifle and Shot Gun Barrels, and Gun Materials, sold by Gun Dealers and the Trade generally.

☞ In these days of Housbreaking and Robbery, every house, Store, bank and office should have one of

REMINGTON'S REVOLVERS.

Parties desiring to avail themselves of the late improvements in Pistols, and superior workmanship and form, will find all combined in the new Remington Revolvers.

Circulars containing cuts and description of our Arms will be furnished upon application.

E. REMINGTON & SONS, Ilion, N. Y.
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64m 40 Cortland streets, New York

KAVANAGH & DECKER'S

BILLIARD TABLES.

We are now prepared to furnish New and Second-hand Tables with our New Patent Cushions, at One Day's Notice.

Illustrated Catalogues and Price Lists sent by mail.

KAVANAGH & DECKER,
5-ps 235 Canal street, New York.

CARD.—Professor H. DUSSAUCE, Chemist, lately from the laboratory of the French Government, left for Europe in the middle of May, where he will reside several months. He takes occasion to inform his numerous friends that he is ready to transact any business there in the chemical line, such a buying books and apparatus, machinery, presses, etc. selling chemical patents, etc. For further information addres New Lebanon, N. Y. 5.tf

NEW YORK ROCK DRILL COMPANY.

OFFICE, 137 BROADWAY.

GEN. E. M. BARNUM, PRESIDENT, . . . G. A. GARDNER, SECRETARY.

This company are prepared to fill orders for Drilling Machines for all kinds of Rock work, for outside work, and for Mining.
The Machines now offered for sale are :

No. 1 Hand machine for ONE man, weighing 100 lbs., with 3 drills, complete.....$ 200 00
No. 2, " TWO " 125 " " " 250 00
No. 3, 1 horse power Machine, weighing 150 lbs., with 8 ft. steam hose, 3 drills, complete, 450 00
No. 4, 2 " " " 250 " " " " " 850 00
No. 5, Machine for VERTICAL drilling, *without engine*, to drill holes 4 to 6 inches diameter, with timber frame on wheels, &c.....$1,000 00
No. 6, Machine (entirely of iron), drilling at any angle holes 4 to 8 inches diameter, with *nominal* 4 horse power engine (on truck, and moved by own engine), $2,500 to 3,000 00

These are the only machines that have done regular work in this Country, and are the most Simple, Compact and Economical. We invite the closest scrutiny. A full sized Mining Drill can be seen daily, drilling into a block of Rockport (Mass.) Granite, the hardest Granite known, at the Machine Shop of STERLING & KERR, No. 344 and 346 West 24th street, West of 10th avenue.

GARDNER'S PATENT ROCK DRILLING MACHINE FOR MINING PURPOSES.

DRIVEN BY STEAM OR COMPRESSED AIR. G. A. GARDNER, PATENTEE, NEW YORK.

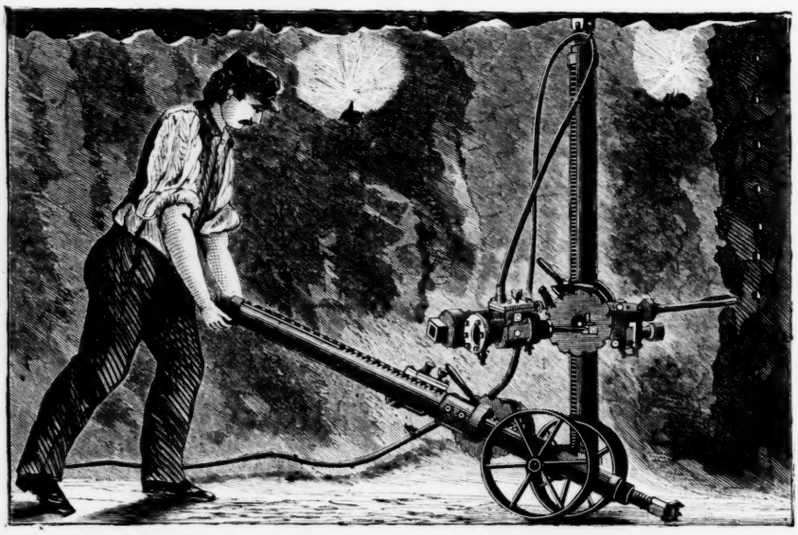
Certificate.

NEW YORK, March 25, 1866.
MR. G. A. GARDNER, Sec'y N. Y. Rock Drill Co.:

Sir—After witnessing the operation of your Rock Drilling Engines on several occasions, . . . I am satisfied that they are capable of boring much faster than by HAND in any kind of rock, and will operate with about equal efficiency at any angle in a vertical or horizontal plane; that they can work in confined spaces, such as shafts and drifts of mines, railroad tunnels, etc., etc.; that several drills can be used where only one could be operated by hand labor. These Machines may be driven by compressed air. It appears to me highly probable that the time required to open mines by machinery may not be more than one-fourth of that which is now required.

The advantages resulting from such a reduction of the time can hardly be over estimated.

Very respectfully,
GEO. D. EMERSON, Mine Engineer,
Late of Lake Superior, Mich.



Certificate.

No. 95 Liberty street,
NEW YORK, March 23, 1866.
MR. G. A. GARDNER, Secretary N. Y. Rock Drill Co.

DEAR SIR: Respecting the "Gardner Drill," I would say, we used it with perfect success on the Niagara Falls Canal. When we first worked it, we drilled in the solid limestone, holes of the diameter of six inches, at the rate of eighteen inches deep, in twenty minutes.

We used it for several months on the regular work, and found it more economical and effective than any other drill we have ever used. The rock is the hardest kind of blue limestone, with occasional boulders of quartz imbedded in it. You are at liberty to refer parties to me who may desire more particulars.

S. M. ALLEN,
Late President of Niagara Falls Water Power Company

This cut represents a section of a mining tunnel, or *drift*, 6x4½ feet, with two Drilling Engines; one driven by *compressed air*, drilling horizontal holes, the other being moved by the Engineer to its position on a pair of wheels *temporarily* attached to its supporting column; three of these columns, with two machines on each, may be worked in a drift of this size, producing as much working effect as fully seventy five men. A drift of this size through solid rock (Granite for example) can be thus driven ten lineal feet every 24 hours.

These machines are very compact, measuring—independent of supporting column, etc.—30 inches in length by 12 inches breadth and depth, and weighing only 250 lbs. One man can move and adjust them to the work. The supporting column is held firmly in place by setting out the jack-screw, thus bracing it between the top and bottom of tunnel, or the sides of shaft, and the machines are raised and lowered by a gear working in the rack on side of column, while the attachments to the column form a *universal joint* and allow the machines to work *at any angle*. They are automatic; one engineer can attend to a gang of four or six, working on the same face. Six of them can be worked in a heading four and a half by six feet; and in a shaft six by twelve feet, eight of them can be worked at once. In a railroad, or other large tunnel, an increased number of machines can be operated, being supported and moved upon a carriage running on rails. The blow is struck by the drill being projected by the reactive force of an india rubber spring, against the rock, the drill being as free from the working machinery at the instant of striking, as an arrow shot from a bow; 300 blows per minute can be given with the utmost force the steel drill point can bear. The cross-head to which the drill is attached is drawn back; (thus compressing the spring) by a cam rotated directly by the piston rod of an oscillating cylinder, the drill point has an automatic turning motion, and the entire machine an automatic feed, *self-regulating*, according to the varying hardness of the rock; the machine working equally well with the same adjustment when drilling on flint, or on granite cutting two inches deep per minute, or on micaslate, sandstone, or other softer rocks, cutting four and six inches per minute. They drill equally well at any angle, and with them holes can be put in the most difficult places with great facility.

Machines for open cuts have been worked for several years on railroad and canal excavations, operated by four-horse engines drilling four, six and eight-inch diameter holes, and doing the work of fifty men. Rock-Drilling can be done with these machines for one-tenth the cost of hand labor, and in one-tenth the time. We are prepared to furnish machines with *gangs of drills* for splitting granite, marble, etc; *channelling machines* for marble, etc., when blasting is to be avoided; also machines for cutting the "BEARING IN" in Bituminous Coal Mines: we also manufacture the GARDNER PATENT DRILL POINTS, especially desirable for sinking oil wells; making round holes, requiring no reaming, and cutting faster than any other point.

2-tf

A SAFE STEAM BOILER.

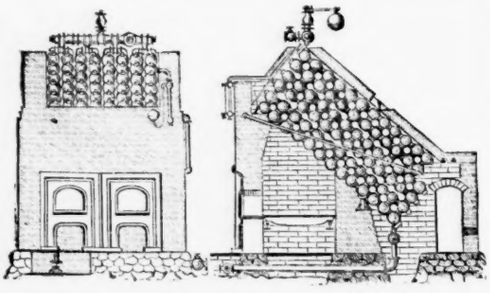
THE HARRISON BOILER.

This New Steam Generator combines essential advantages IN ABSOLUTE SAFETY FROM EXPLOSION, in first cost and cost of repairs, durability, economy of fuel, facility of cleaning and transportation, not possessed by any other boiler.

It is formed of a combination of cast iron hollow spheres—each eight inches in external diameter, and three-eighths of an inch thick, connected by curved necks. These spheres are held together by wrought iron bolts with caps at the ends. The form is the strongest known; its strength to resist internal pressure very great—unweakened as it is by punching or riveting, which lessens the strength of the wrought iron boiler plate about forty per cent. Every boiler is tested by hydraulic pressure at 300 pounds to the square inch

IT CANNOT BE BURST UNDER ANY PRACTICABLE STEAM PRESSURE.

Under pressure which might cause rupture in ordinary boilers, every joint in this becomes a safety valve. No other steam generator possesses this property of relief, under extreme pressure without injury to itself, and thus preventing disaster.



IT IS NOT SERIOUSLY AFFECTED BY CORROSION, which soon destroys the wrought iron boiler. Most explosions occur from this cause. It has economy in fuel, equal to the best boilers, arising from the large extent and nearness to the fire of its heating surface, as also from the waved line of this surface, which, thoroughly mixing the gases, induces better combustion, and, breaking the flame, causes the heat to be more effectually absorbed than in the ordinary tubular or cylinder boiler.

IT GETS UP STEAM QUICKLY, and with little fuel. It produces superheated steam without separate apparatus, and is not liable to priming or foaming.

IT IS EASILY TRANSPORTED, and may be taken apart so that no piece need weigh more than eighty pounds. In difficult places of access, the largest boiler may be put through an opening one foot square.

IN THIS FACILITY OF TRANSPORTATION IT IS WITHOUT A RIVAL FOR REMOTE MINING DISTRICTS.

IT IS READILY CLEANED INSIDE AND OUT. Under ordinary circumstances it is kept free from permanent deposit by blowing the water entirely out under full pressure once a week. It requires no special skill in its management. Injured parts can be renewed with great facility, as they are uniform in shape and size. When renewed the entire boiler remains as good as new.

A boiler can be increased to any extent by simply adding to its width, and being the multiplication of a single form, its strength remains the same for all sizes. It has less weight and takes less than one-half the ground area of the ordinary cylinder boiler.

ANY KIND OF FUEL MAY BE USED UNDER THIS BOILER, from the most expensive, to refuse coal dust.

For descriptive circulars and prices, apply to

JOSEPH HARRISON, JR., Harrison's Boiler Works, Gray's Ferry Road, adjoining U. S. Arsenal, Philadelphia, Pa.